
IN THE
United States Circuit Court of Appeals
FOR THE NINTH CIRCUIT

WARD & PETERSON,
Appellants,

vs.

SHOPE BRICK CO., a Corporation,
Appellee.

Appeal No. 4290

APPELLANTS' BRIEF

*Upon Appeal from the United States District Court
for the District of Oregon.*

ATKINS & ATKINS,
JOSEPH L. ATKINS,
LEICESTER B. ATKINS,
Attorneys for Appellants.

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CLERK

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v.

SHOPE BRICK CO., a Corporation,
Appellee.

Appeal No. 4290

STATEMENT OF THE CASE

This is an equity suit brought by plaintiff-appellee, a corporation, hereinafter designated plaintiff, against defendants-appellants, hereinafter designated defendants, to-wit, Roy Ward and Otto Peterson, co-partners doing business in Portland, Oregon, under the firm name and style of Ward & Peterson. The bill is in usual form and seeks to obtain redress for alleged infringement of rights alleged to be secured to plaintiff of United States letters patent No. 985,709, issued under date of February 28, 1911, for "METHOD OF WATERPROOFING CEMENT BLOCKS."

Plaintiff deduces title by mense assignments from David F. Shope, to whom, as applicant therefor, the said patent was issued.

In its bill as originally filed, plaintiff included in this suit two other patents, namely, 1,270,450, and 1,306,977, issued, respectively, June 25, 1918, and June 17, 1919; but at the trial it restricted its suit to aforesaid Patent No. 985,709. For that reason,

the decision rendered below relates only to the patent last named, and this appeal is limited to the consideration, solely, of that patent.

DEFENSES

Defendants plead:

(I) Invalidity of the patent sued on, because of anticipation in the prior art;

(II) Invalidity, because what the patent discloses does not involve invention in view of what is shown in the state of the prior art;

(III) Invalidity, because the invention which the said patent purports to cover is wholly inoperative for any new and useful purpose whatsoever;

(IV) Non-Infringement.

For convenient brevity the patent in suit is hereinafter designated "the Shope patent," and the alleged invention which it describes, as "Shope's invention," or briefly "Shope".

Italics, bold faced, or other distinctive type employed herein are ours unless otherwise indicated.

DEFENDANT'S THEORY OF THE CASE

Before examining in detail the evidence, and the cases and authorities, and before entering upon the general argument of the case it is deemed advisable to give a brief outline of defendant's theory of the case.

While the patent sued on was granted for an alleged new and useful Method of Waterproofing

Cement Blocks, it is clear from the File Wrapper and Contents alone that the patentee never represented to the Patent Office that he claimed to have invented anything new in Cement Blocks; but that he proposed only to patent a method, namely: the adding to such a block "formed in the usual manner" (Shope Spec., p. 1, line 56) a waterproof face by the application of cement, either neat or mixed with sand or other ingredients (Ib. lines 62-63).

The patentee does not and cannot claim to have been the first to apply such a face to a block. If he may be considered to have done so in the form in which he first presented his application, it was a mistake upon his part, which upon rejection by the Patent Office, he, without controversy, admitted and corrected.

What the Patent Office finally allowed was two claims, each limited to a specific mode of imparting a so-called waterproof face to a cement block, by applying water and cement to the face of the block, so as to cause the water to "enter the pores or voids of the block to the required depth, and carry with it the cement powder sifted thereon" (Ib. lines 66-69).

Claim 1 of the patent is limited substantially to the terms last above quoted. Claim 2 contains the same limitations as claim 1, but is differentiated therefrom by including *agitation* as a final step to complete the method defined in the claim.

There is no evidence that plaintiff or any one else ever attempted to practice the method defined in

claim 1. There is no evidence that the alleged invention as defined in either of the claims ever resulted in causing the cement of the face coating applied to the block to enter the pores or interstices of the block. The evidence is all the other way, and contradicts the very principle of operation alleged as a condition precedent to the granting of the patent.

All that the plaintiff does in its manufacture of brick is to bring water and cement together upon the face of the block while it is confined in its mold, and mix them by the violent agitation of them by aid of a surface-rubbing instrument, technically known as a "float," which is a kind of trowel. Mr. Werner, plaintiff's expert witness, correctly describes (Record, p. 194) the step of the method indicated in this paragraph as a mixing "*in situ*."

Mixing *in situ* instead of the usual mixing *ex situ*—that is to say, as defendants do it, on a mortar board—is the only pretense of a distinctive feature of the Shope "invention" observed in practice by the plaintiff. Nevertheless, the plaintiff has sued the defendants for exercising an "art" that is hoary with age, the said "art" being neither more nor less than spreading a coat of mortar on a brick. It is almost beyond the power of belief, but it is nevertheless true, that the court below has, in effect though of course inadvertently, sustained the plaintiff in its extravagant position.

Our contention is not only that Shope obtained a patent limited to a certain definite narrow scope,

but also that even to obtain it within that scope he made representations of fact which are untrue, as pointed out under head ~~IV~~^{III} hereof, and none the less so because he may have believed them to be true. Now, having so obtained the patent, he seeks through this court, in defiance of the prior state of the art, to have the patent expanded beyond its plain limitations, into an odious monopoly, an instrument of oppression.

If we may do so without appearing to assume to instruct this honorable court in the discharge of its duty, we would in this connection invite attention to a recent decision in the case of *E. A. McMillin Co. v. Androscoggin Pulp Co.*, 291 Fed. 134. In that case, on page 137, Judge Hale for the Southern District Court of Maine, says: "It is the duty of courts sitting in patent cases to recognize invention when they meet it; but it is also clear that it is their duty not to extend such recognition to mere mechanical skill."

In an earlier case, Judge Brown, speaking for the District Court of Rhode Island, says:

"The present hearing illustrates even more fully than the former hearing the necessity of requiring a patentee to reasonably limit his claims, so that they shall embody and specify elements essential to his actual improvement in the art. The right of a patentee to exclude others from the use of old and familiar mechanical combinations and structures must be carefully restricted. The duty

rests upon the court to guard the public against that form of unjust monopoly, which may result from sustaining highly abstracted claims. The language of the Supreme Court in *Carlton v. Bokee*, 17 Wall. 463, 471, 21 L. Ed. 517, should always be in mind.

“‘We think it proper to reiterate our disapprobation of these ingenious attempts to expand a simple invention of a distinct device into an all-embracing claim, calculated by its wide generalization and ambiguous language to discourage further inventions in the same department of industry.’

“‘An attempt to save such claims by a beneficent interpretation is not only contrary to well-established patent law, but a practical mistake. Patent claims are advisedly made by skilled solicitors, and if they choose to claim abstractions or high generalizations they must stand by them.

“‘As was said in *American Bell Tel. Co. v. National Tel. Mfg. Co.*, (C. C.) 109 Fed. 1043:

“‘The patent statutes requires the patentee himself to claim and define his invention so that the public may know its right, and so that there shall not be imposed upon the courts the burden of constructing upon a hearing new claims from the interpretations that experts may place upon language of the most sweeping and general character.’”

Robinson v. Tubular Woven Fabric Co., 248
 Fed. 526-546, at pages 541-542. Affirmed
 and opinion endorsed 254 Fed. 304 (306).

In the instant suit, we should not regard the claims as "high generalizations," except for the fact that they appear in some way, for which we cannot on any other theory account, to have misled the court below.

DECISION OF THE TRIAL COURT

The opinion of the court below was delivered orally. It appears in the Record, with approval by Judge Bean, as it was reported and transcribed by the court stenographer, in the following words:

"IN THE DISTRICT COURT OF THE UNITED
 STATES FOR THE DISTRICT OF OREGON

Shope Brick Company,

Complainant,

v.

Roy Ward and Otto Peterson,

Defendants.

Portland, Oregon, June 9, 1924.

R. S. BEAN, District Judge: (Oral)

This is a suit for infringement of patent issued to plaintiff's assignee in February, 1911. The patent covers a process for waterproofing cement brick or cement blocks, and consists of the covering of the face of the block with water then applying pure cement and by agitating forcing the solu-

tion or mixture into the pores of the block, thus making it waterproof.

There are two questions raised by the defendant: First, that they have not infringed this patent, and second, that the plaintiff was not the original inventor of the patent process. Now, as far as the first question is concerned, there is in my judgment no room for controversy about the infringement. The process used by the defendant was substantially the same as that covered by the patent, so if the patent is valid there is in my judgment no question about the infringement.

Now the patent is the first one issued covering this method or this process. There were prior patents issued for covering cement blocks with cement, but it was either under pressure or by simple dipping, but the process described in plaintiff's patent is not anywhere disclosed directly by the prior art, and the rule is that the granting of a patent is *prima facie* evidence that the patentee is the first inventor, and of its novelty, and the burden of proof is on one who assails the patent for want of novelty, and many authorities have stated that every reasonable doubt should be resolved against him. Now, in view of that rule, as I interpret this record, it has not been shown clearly that the patentee was not the original and first inventor of this process, and for that reason it seems to me that the plaintiff is entitled to the relief demanded in his prayer."

The foregoing decision is based entirely upon what the Patent Office simply accepted as an *ex parte* definition of an alleged invention which we contend does not exist in fact. The operativeness of the alleged invention, although positively denied, was not attempted at the trial to be proved. Reasons for denial of operativeness are hereinafter, under Head ~~IV~~^{III}, set forth with particularity of detail.

The court below, disregarding the rule that "in construing a patent it is necessary to consider the state of the art when the application for it was made" (*Burt v. Evory*, 133 U. S. 349, 33 L. Ed. 647), adopts what we understand to be plaintiff's theory of the case, namely: that the invention described and claimed in the patent sued on is one of broad generic scope; that it is not anticipated in the prior art; and that the patent is entitled to every consideration which the law confers upon a basic patent issued to a pioneer inventor.

This theory we maintain to be altogether false, because it is based on a misconception of the true nature of the invention, and a misinterpretation of the patent intended to be conveyed in the grant.

POINTS AND AUTHORITIES

I.

PATENT SUED ON IS INVALID

The trial court appears to have fallen into error in consequence of having disregarded not only the rule of construction in *Burt v. Evory*, *supra*, but

also the plain limitations imposed by the Patent Office upon the patent, and of conceding to it a scope far beyond any claim embraced in it, a scope indeed so broad as to include matter which was actually relinquished and in effect disclaimed by the patentee in order to obtain his patent. This proposition is amply supported by the showing made in the File Wrapper and Contents (Record, pp. 230-3-7-8-9).

What defendants did, if it was old to do it, as we allege it was, goes to prove the invalidity of the patent sued on. This conclusion follows of course from the doctrine repeatedly recognized by this honorable court, and stated by the Supreme Court to be well established, towit:

“That which infringes a patent if later, would anticipate it if earlier.”

See *Knapp v. Morss*, 150 U. S. 221; 37 L. Ed. 1059, and authorities there cited.

On final analysis, it appears that the court below has been led into the palpable error of holding: **PLAINTIFF HAS THE EXCLUSIVE RIGHT TO PLASTER A BRICK WITH CEMENT.**

The last statement is a bold one; but it is submitted to be amply supported in the digest of the File Wrapper next below appended.

PATENT IN SUIT—FILE WRAPPER DIGEST

The File Wrapper shows that the application for the patent in suit was filed on October 9th, 1909, with three claims reading as follows:

“1. The herein described method of waterproofing the faces of cement blocks which consist(s) in first mixing cement and sand in a semi-dry condition and molding it into blocks, then applying water upon the face of the block and spreading dry cement thereon.

“2. The herein described method of waterproofing the faces of cement blocks which consists in first forming the block by mixing sand and cement in a semi-dry state and molding it, then pouring water upon the face of the block until it is covered, then spreading cement upon the water and agitating the mixture to carry the cement into the interstices of the block of the required depth.

“3. The herein described method of waterproofing the faces of cement blocks which consists in first molding cement and sand in a semi-dry state, then covering the face of the block with water, then spreading cement upon the water and agitating the mixture, and then stippling the face of the block.”

Under date of January 4, 1910, the Patent Office, in its first action, rejected all the claims, citing against claims 1 and 2 two U. S. patents, towit:

Jacques, 748,611, dated Jany. 5, 1904.

Haddock, 531,842, dated Jany. 1, 1895.

In rejecting claim 3, two patents were cited, towit:

Lake, 743,525, dated Nov. 10, 1903.

Henderson, 886,124, dated April 28, 1908.

By amendment, Paper No. 3, dated April 11, 1910, in response to rejection aforesaid, the claims were reduced in number to two, by cancellation of claims 1 and 3, above quoted, and the introduction of a new claim 1, as follows:

“1. The herein described method of forming a water-proof faced cement block which consists in *first* mixing cement and sand in a semi-dry state and molding it into a block, *next* covering the face of the block with water *and then* sifting dry cement thereon, *whereby the water will carry the added cement into the pores of the block without the application of external pressure.*”

Claim 2 was amended, lines 1 and 2, by substituting for the words “waterproofing the faces of cement blocks,” the words “forming a waterproof faced cement block.” Correction, line 4, of claim 2, was also made of a mere typographical error.

A second rejection, Paper No. 4, dated April 19, 1910, promptly followed. In reference to claim 1, last quoted rejection reads as follows:

“Claim 1 covers nothing beyond the ordinary process of laying cement sidewalks when the surface of the pavement is coated in whole or in part with water brought to the surface by tamping. It is accordingly rejected upon Haddock.”

In a final amendment, Paper No. 5, dated June 14, 1910, the grounds of rejection advanced in office letter, Paper No. 4, last aforesaid, were acquiesced in, and amendment was made as follows, to wit:

Substitution, for claim 1 last above quoted, of claim 1 of the patent.

Claim 2 was also by slight amendment made to read in the words of claim 2 of the patent.

Allowance of the application followed under date of August 6, 1910. Payment of the final government fee was delayed substantially to the end of the period allowed by law for its payment, and the patent was issued February 28, 1911.

A critical examination of the patent in suit in view of the foregoing history which its File Wrapper affords, and of the Haddock patent, No. 531,842 (Defendants' Exhibit H, Record, pp. 262-264), cited therein, will lead to a correct understanding of the true scope of the patent as well as of its plain limitations. It has been, in view of the repeated amendments made by the applicant Shope in response to the several actions of the Patent Office, deemed by counsel for both parties unnecessary to burden the Record with copies of patents which were cited in the first rejection made by the Patent Office, other than that of Haddock aforesaid.

SPECIFICATION OF PATENT SUED ON

The patent in suit, page 1, lines 9 to 28, inclusive, presents, in conformity to Rule 39(b) of the Patent Office, the following "General Statement":

"My invention relates to the method of forming cement blocks having a waterproof facing, its object being to waterproof the exposed face of the block without the application of external pressure or the use of special waterproofing compounds, and in such manner that the block can be immediately removed from the mold.

"Cement blocks, as distinguished from cast stone, are usually formed by pressing or tamping in a mold a mixture of sand and cement in a damp or semi-dry state so that the blocks can be immediately removed from the mold. The block, when formed and cured, is a porous body with interstices, voids, or pores between the particles of sand and cement, to which mortar will adhere in wall construction, but which must be waterproofed on its exposed face to prevent the absorption of moisture."

"Detailed description," required Section (d) of Rule 39, aforesaid, beginning same page, line 55, reads:

"In the present method the block is first formed *in the usual manner* by mixing sand and cement in a slightly moist or semi-dry state, and pressing or tamping it in a mold. Water is next applied,

as by sprinkling, to the face of the block in sufficient quantity to enter the pores or interstices of the block, and then a *powder of cement*, either neat or mixed with sand or other ingredients, is sifted upon the water, which is at the same time agitated so as thoroughly to saturate the face of the block. *The water will* thus enter the pores or voids of the block to the required depth, and *carry with it the cement powder sifted thereon*. The water serves both to carry the cement into the pores and to cause crystallization of the added cement, and no external pressure will be required to force the water and cement into the block. The face of the block is then stippled or otherwise treated as may be desired, and the block removed from the machine and cured in the usual manner."

Immediately following the matter last quoted, in lines 78 to 88, inclusive, appears the following paragraph:

"It will be understood that the main portion of the block remains in a comparatively dry state so that it can be immediately removed from the mold, and all its faces, except those exposed to the water and crystallizing mixture, will be porous so that the mortar will adhere to them, while the outer face will be proof against the absorption of water because all of the interstices and pores have been filled with crystallized cement."

The aforesaid "detailed description" of the patent, same page, lines 89 to 92, inclusive, concludes with a definition of the intended scope of the term "block" employed in both claims, which reads as follows:

"The word 'block' is here used generically to include a brick, tile, or other mass of any shape or size, as well as a 'block' technically so called."

Compare testimony of plaintiff's expert, Werner, Record, page 190, particularly lines 15-17.

CLAIM OF PATENT SUED ON

Section 4888 of the Revised Statutes, makes the claims of a patent an indispensable part of every application for patent.

The court is doubtless familiar with the law on this subject, but it is deemed not inept to present the following propositions of law:

All claims are required to be definite "so that the public may know what they are prohibited from doing during the existence of the patent, and what they are to have at the end of the term as a consideration for the grant."

Brooks v. Fiske, 15 How. 212, at 215; 14 L. Ed. 665.

"It seems to us that nothing can be more just and fair, both to the patentee and to the public, than that the former should understand and correctly describe just what he has invented, and for what he claims a patent."

Merrill v. Yeomans, 94 U. S. 568, at 573; 24 L. Ed. 237.

The invention patented is the invention set forth in the claims and that only.

O'Reilly v. Morse, 15 How. 62; 14 L. Ed. 601.

Yale Lock Mfg. Co. v. Greenleaf, 117 U. S. 554, 555; 29 L. Ed. 952.

McClain v. Ortmyer, 141 U. S. 419, 424; 35 L. Ed. 800.

Grant v. Walter, 148 U. S. 554; 37 L. Ed. 557.

CLAIMS CANNOT BE ENLARGED BY SPECIFICATION

“(1) Strictly speaking, infringement of a patent is an erroneous phrase; what is infringed is a claim, which is the definition of invention, and it is the claim which is the cause of action.

“One may appropriate many of the ideas or concepts suggested by specification and drawing, but it is the claim that measures both the patented invention and the infringement thereof. This rule obtains whether the patent be properly spoken of as great or small, primary or secondary.”

(Citing Walker on Patents, 5th Ed., 186.)

“(2) A patentee may describe something that he does not claim, or claim that which he has not described; *his grant of privilege is construed to cover only that which is BOTH described and*

claimed, no matter how broad the claim-language may be. . . . Description may limit a claim, *which must always be read in the light of the prior art*; but it can never expand it. So that a patent (i.e., a claim) can never be given a construction broader than its terms in order to cover something which might have been claimed but was not.

“(3) The drawings may help out an ambiguous description, but never can they supply the entire absence of any written description of a feature of the invention.”

Fulton Co. v. Powers Regulator Co., 263 Fed. 578, page 580.

The rule observed by the Supreme Court in *Westinghouse v. Boyden Power Brake Co.*, 170 U. S. 537, at page 558; 18 Supt. Ct. 707; 42 L. Ed. 1136, that the mere terminology of a claim does not determine infringement, when the *parts* indicated thereby are *functionally different*, implies that in order to properly construe a claim it is necessary to consider the precise nature of the invention it purports to define. Otherwise, it were impossible to make that comparison of two objects of apprehension which is necessary to the forming a judgment of whether they agree or disagree.

It clearly appears, in the light of the rule just referred to, from what is set forth under the present heading, that the only claim made by the patentee Shope and allowed by the Patent Office is a

combination art (Robinson on Patents, Sec. 168), towit: one which includes, as the distinctive step of the process, *the causing of cement applied to the face of a porous block made of moistened cement and sand, to enter the pores of the block.* The rejection of claims which did not recite that function, and their consequent erasure are, we submit, conclusive on that point.

Masseth v. Larkin, 111 Fed. 409, at page 411.

See also, Heitler v. Brooklyn Shield & Rubber Co., citation next below, first sentence there quoted.

The means for accomplishing the end last named is, in claim 1, defined to be: "applying water to the face of the block in a sufficient quantity to enter the pores or interstices of the block, and adding cement to the water, whereby the cement will enter the pores or interstices with the water." The language just quoted is the only differentiation offered to distinguish the subject matter of claim 1 from the prior art, and from claims rejected on it and thereupon cancelled.

In the case of Masseth v. Larkin, just above cited, Judge Buffington, for the Circuit Court of the Western District of Pennsylvania, uses the following apt language:

"To ignore the express functional limitation of the claim, viz., 'arms adapted to engage with the sides of the hole,' would be to create a new claim,

not interpret the one granted. *Anthony Co. v. Gennert*, (C. C. A.) 108 Fed. 396.”

The case cited by Judge Buffington is precisely to the same effect, and is one in which he sat in the Circuit Court of Appeals for the Third Circuit.

Claim 2 is differentiated from claim 1, substantially by the addition thereto of the following words, towit: “agitating the mixture to carry the cement into the interstices of the block to the required depth.”

The argument presented before the Patent Office in order to secure allowance of the claims of the Shope patent supports our position set forth in the three preceding paragraphs.

In that connection, Judge Campbell of the District Court for the Eastern District of New York, in *Heitler v. Brooklyn Shield and Rubber Co.*, 295 Fed. 333, decides a case whose facts substantially correspond with those of the case at bar. Because of its pertinency, in several aspects, to this case, we quote below Judge Campbell’s opinion at some length, beginning at page 336. The language employed by the court reads as follows:

“Of course, such argument cannot control or restrict the plain language of the claim finally allowed (*A. G. Spaulding & Bros. v. John Wanamaker*, 256 Fed. 530, 167 C. C. A. 602), but the applicant cannot now claim anything which was rejected. *Van Epps v. United States Box Board*

& Paper Co., (C. C.) 137 Fed. 418. Therefore, if the patent bears on its face a particular construction, the argument made before the Patent Office may confirm that construction. *Goodyear Dental Vulcanite Co. v. Davis*, 102 U. S. 227; 26 L. Ed. 149.

“In the face of the art cited by the Examiner, Bartlet, No. 1,144,631, and the French patent, No. 405,344, the argument on behalf of the applicant had weight, because both of those patents show garment protectors of substantially the same type, having elongated openings extending vertically from top to bottom over the thighs of the wearer, with transverse elastic bands or tapes bridging the openings, to hold the spaced apart front and rear parts of the garment yieldingly in position, and by the limitation as to the integral body surrounding the cut-out portion of the garment the applicant did clearly differentiate claim 2 of the patent in suit from the art so cited.

“If the Patent Office had cited all the pertinent patents, the presumption of validity would be sufficient to sustain the patent; but in the instant suit that presumption is greatly weakened, if not entirely rebutted, because of the failure of the Patent Office to cite patent No. 36,125, issued to Elizabeth Higgins, dated August 5, 1862. *International Co. v. Young*, (C. C. A.) 284 Fed. 831.”

Reverting to the case at bar, the application to a porous block of a previous mixture of cement and

water is clearly anticipated in the prior art. It is shown in the Federici patent, Defendants' Exhibit G; in the Davies patent, Defendants' Exhibit L; in the Malette patent, Defendants' Exhibit W; and in the Thomas patent, Defendants' Exhibit V.

For the convenience of the court, copies of all the patents of the printed Record are incorporated in this brief, in numerical order.

FEDERICI PATENT—DEFENDANTS' EXHIBIT G

In the Federici patent, aforesaid, the block D thereof is shown and described as made of "comparatively coarse material"—sand and cement—with a layer C of pure cement in a plastic state. The fact that Federici provides an ornamental finish for his block by partially embedding pebbles B in the layer C "while the material is yet plastic" is wholly immaterial to the present inquiry. It simply means that Federici in 1894 regarded as unpatentable what plaintiff is now attempting to claim. Be that as it may, he did not claim it, and the rule of law is clear that what a patentee might have claimed, but did not claim, he has dedicated to the public.

Keystone Bridge Co. v. Phoenix Iron Co., 95 U. S. 274, at 278; 24 L. Ed. 344.

Continental Paper Bag Co. v. Eastern P. B. Co., 210 U. S. 405; 52 L. Ed. 1122.

DAVIES PATENT—DEFENDANTS' EXHIBIT L

The Davies patent describes and claims the process of forming a post made, with express disclaimer of restriction as to shape, of a mass of *damp* sand or other coarse aggregates and cement, pounded into a mold, and afterwards, upon removal of the post from the mold when it "has become sufficiently set to permit of the post being handled without danger of breaking and before it has become finally set" (Davies Spec., page 1, lines 75-78) dipping it "into a bath of pure liquid Portland cement of such fluidity as that it will run smoothly and evenly over the entire exposed surfaces of the post and fill all cracks, crevices and interstices" (Ib. lines 80-84). Davies (Ib. page 2, lines 4-7) bases his claim solely upon distinction of his invention from *the then existing prior art of brushing or otherwise smearing a surface coating on a cement post*. The Davies patent issued July 1, 1902, and shows beyond question that at that date, which anticipated the Shope application by more than seven years, it was a matter of common knowledge that the protecting of cement blocks—fence posts—"against the entrance of moisture" (Ib. page 1, lines 40-41) could be accomplished by the application to the surface thereof of a fluid mixture of Portland cement and water. Davies only claimed at that time the substitution of dipping the post in a bath of liquid cement *instead of the admittedly old method of brushing or otherwise smearing the liquid upon the surface*

treated. The Davies patent of itself alone reduces the scope of the Shope patent to the exceedingly narrow and well defined limits attributed to it.

The fact that the Davies patent refers specifically to a concrete fence post is of no possible consequence, particularly in view of the definition (*supra*, page 16) of the term "block" contained in the Shope patent.

THOMAS PATENT—DEFENDANTS' EXHIBIT V

Besides the showing made in the Federici and Davies patents last above referred to, the Thomas patent, Defendants' Exhibit V, presents a complete anticipation of the alleged invention of the Shope patent. The Thomas patent issued May 17, 1910, but it was filed in the Patent Office two years ahead of Shope, on October 12, 1907. Moreover, Shope testifies (Record, page 78, lines 4, 5) that he cannot fix an exact date, but did not make his alleged invention until some time in 1908.

A special importance attaches to *the Thomas patent*, because it *was not cited by the Patent Office against Shope*. One of two conclusions must be drawn from that circumstance. One conclusion is that the Shope claims were already regarded by the examiner as restricted only to the narrow scope we admit to be ascribable to them by the utmost stretch of construction, and that there was therefore no occasion to cite Thomas. The other conclusion is that the examiner overlooked the Thomas patent.

We are of opinion that the examiner did not overlook Thomas, but if he did, his doing so, considering its extreme pertinency, impairs the presumption of validity raised by the grant of the Shope patent to the point of actually destroying such presumption. We, therefore, trust that it will not overtax the patience of the court if we submit a few authorities on this point.

PRESUMPTION OF VALIDITY

“The Patent Office being charged by law with the duty and being given the power to pass upon all applications for patents, the courts always *prima facie* presume that its action in granting a patent is correct. But this presumption has not been treated by the courts as conclusive, and the reports are full of cases in which the *presumption* was *overcome and the patents held invalid*. It is by no means certain that this has not been the result *in a majority of cases which have reached the Supreme Court*. The reason must be that in many essential respects the hearing in the Patent Office is to a degree *ex parte*, and there must be a natural and altogether proper disposition *there* to give the applicant the benefit of all serious doubts.”

Wm. B. Scaife & Sons Co. v. Falls City
Woolen Mills, 194 Fed. 139, 145.

If the presumption raised by the issue of the Shope patent should come to be seriously consid-

ered, the language of the court, 3 C. C. A. next quoted, should, we submit, have weight with this court in reaching a decision. The court says:

“We do not agree with the contention that the file wrapper discloses the patent to have been granted as first applied for, without any references, adds any force to the presumption of novelty arising from the grant. On the contrary, we think the force of that presumption is much diminished, if not destroyed, by the lack of any reference by the examiner to, or consideration of, the ‘Clark’ patents. It does not seem likely that an expert examiner would pass them by, without notice or consideration, if they had been called to his attention. We feel compelled, therefore, to the conclusion that the first and fifth claims of the patent in suit are invalid for want of patentable novelty.”

American Soda Fountain Co. v. Sample, 130
Fed. 145, 149.

Heitler v. Brooklyn Shield & Rubber Co.,
(*supra*), even more clearly presents the
point involved.

The Court of Appeals for the Sixth Circuit follows the decision last quoted, saying:

“It should be noted that it appears from the record that neither Wightman nor the Potter patent was cited to the examiner in the Patent Office and were overlooked by him. This circum-

stance affects the presumption in favor of the validity of the patent from its issuance.”

Westinghouse Elec. & Mfg. Co. v. Toledo P. C. & L. Ry. Co., 172 Fed. 371, 392.

“Nor is the ordinary presumption to be indulged in favor of the patent, because of the action of the Patent Office in allowing it; the Urie, Schwarz and Suter patents, as it appears, not having been referred to, as they have been here.”

Elliott & Co. v. Youngstown Car Mfg. Co., 181 Fed. 345, 349.

“In this case some of the most significant patents in the Patent Office apparently were not cited or referred to in the consideration of the petition for the patent in suit. This circumstance alone goes far to overcome the presumption of validity.”

Wm. B. Scaife & Sons Co. v. Falls City Woolen Mills, 194 Fed. 139, 145.

“The presumption referred to is sometimes defined to mean that the patent itself is *prima facie* evidence of novelty and of invention, but that presumption is probably a mere rule of evidence, which casts the burden of proof upon the alleged infringer. *This presumption cannot usurp the province of the court to declare what constitutes novelty.* The courts should give due considera-

tion to the action of the Patent Office, but should not permit that action to control its deliberate judgment when it is manifest that there is no invention."

J. J. Warren Co. v. Rosenblatt, 80 Fed. 540, 543.

"The Patent Office, however, has generally issued a patent to anyone who produced a device not before known, unless it was considered reasonably clear that such device did not involve invention. Therefore, in finding a remedy for the evils above stated, *the courts have held invalid a large percentage of litigated patents.*"

Boss Mfg. Co. v. Thomas, 182 Fed. 811, 816.

ANALYSIS OF THOMAS PATENT— DEFENDANTS' EXHIBIT V

In order to arrive at a correct appreciation of the scope of the disclosures made by the Thomas patent, as its importance demands, it is deemed proper to examine that patent with some particularity. Thomas, in his "General Statement," specifies (lines 11-14) that his invention "particularly contemplates the provision of a process whereby the *block* (artificial stone) *may be molded and handled at once,*" as compared with wet mold blocks which require time to set before they can be handled. "According to my invention," he again states, beginning at line 29, "I aim to provide a building block comprising a

body A composed of coarse aggregates and a comparatively small percentage of moisture, being thus made in low plasticity *which gives the opportunity of handling the product immediately.*"

The last sentence is important mainly by way of complete identification of the process of the Thomas patent with that of Shope, because Shope squarely concedes: "In the present method the block is first formed *in the usual manner* by mixing sand and cement in a slightly moist or semi-dry state, and pressing it or tamping it in a mold." (Shope patent, page 1, line 55 *et seq.*)

There can, therefore, be no question that Shope knew that the method of making a cement block just described was old in the art prior to his alleged invention; but, moreover, the Davies patent afore-said shows that said method was old, as we have already indicated. It is unnecessary to multiply instances available to the same effect.

Pursuing our analysis, Thomas specifies (lines 26-28) :

"Figure 2 is a similar view (compared with Figure 1) of a modified form of building block constructed in accordance with my process."

In said Figure 2, a layer B is shown as an external coat spread upon the body A. With reference thereto, Thomas (Spec. lines 35-54) in his detailed description states:

“The face B of this block comprises a mixture of finely divided aggregates formed in a state of high plasticity, that is with moisture sufficient to render the same into a thoroughly plastic mass. Making the body A of the block of low plasticity and the face B of a high plasticity, *gives an opportunity of working the material* and at the same time *bringing out the virtues of the cement* and making the block of sufficient moisture in the mixture, *to produce perfect crystallization* and to produce stone instead of merely cemented sand and gravel. *This block is floated with some pressure which closes the pores in the cement to further the OPPORTUNITY of working the material properly* and the surface is preferably sifted over with finely crushed marble or stone C properly mixed with Portland cement to produce a beautifying crystallized effect.”

Thomas concludes his specification with a final paragraph as follows:

“When a mixture is made very dry as heretofore in molding blocks, it is hard to get sufficient water to produce perfect crystallization, *while the facing of high plasticity provided by my process uses all the water that is necessary for perfect crystallization.*”

Incidentally, Thomas suggests, but preferentially only for ornamental purposes, the employment of an added surface coating C, as appears in above quota-

tion last but one. If it be objected that Thomas describes his face B as comprising a mixture with cement of finely divided aggregates (Spec. line 36) let it be noted in that regard that Shope likewise specifies the same mixture when he states (Patent, lines 62-64) that the outside waterproof face of his block is made as follows: “a powder of cement *either neat or mixed with sand or other ingredients* is sifted upon the water” that is previously applied to the block. Thomas does not specify the application of water to the body A of his block previously to the addition to it of the mixture which makes his layer B, but, as he states at the end of the last paragraph of his specification above quoted, relies upon the layer B to supply “all the water that is necessary for perfect crystallization.”

Mr. Werner, plaintiff's expert witness, referring to Thomas (Record, page 184, lines 23-24), says:

“Here is a man who clearly had the same intent Shope had.”

Defendants deny (see Head II hereof) that there is any difference in respect to the order of the application of water and cement between that step of the method described in the Thomas and the Shope patents, respectively. Shope himself testifies (Record, page 84) that there is no difference. The method which consists in applying to a porous cement block a cement coating for waterproofing purposes is not only shown to have been old in the

art by reference to the patent already considered, as well as by reference to the examiner's citation, in his last rejection as recorded in the File Wrapper, to "the ordinary method of laying cement sidewalks"; but it is shown in the Haddock patent, Defendants' Exhibit H, as the examiner holds in his said last action, and is shown besides in the Malette patent, Defendants' Exhibit W.

HADDOCK PATENT—DEFENDANTS' EXHIBIT H

The Haddock patent, because of its importance, has been reserved for the last patent to be considered under the present head.

Its importance is found primarily in the fact that the examiner based his final rejection directly upon it, and that Shope accepted his patent subject to the restriction thereby imposed upon it.

Boss Mfg. Co. v. Thomas, 182 Fed. 811, p. 813
and authorities there cited.

We also maintain that it discloses a complete anticipation of the Shope patent in every material and operative feature.

For facilitating the reading of the Haddock patent, it is well to suggest at the outset that the drawing thereof shows "a cross-section of a preferred form of block as made by my method" (Haddock, Spec., page 1, lines 40-41). Without this precaution, the drawing might prove confusing by reason of its being easily mistaken for a perspective view.

Now, Haddock forms his block (stratum C) precisely as both plaintiff and defendants do, by placing in the bottom of a mold (Ib. line 67) a mixture of materials comprising Portland cement, sand, and water in such proportions as to leave "the mass in a moist rather than wet condition" (Ib. line 76). The said mass "is then thoroughly tamped and compressed" (Ib. lines 80-81.) "The material thus tamped becomes solid and firm" (Ib. lines 84-85). Haddock, therefore, of itself, makes complete disclosure of Shope's "moist or semi-dry" block.

Beginning in line 89 of his specification, Haddock continues:

"I next sift or spread on the exposed face of the compressed material a coating of pure cement, either natural or artificial. I then moisten this coating. The amount of material used in this step is sufficient to form a complete coating or covering *and it constitutes a stratum impervious to water.*"

The language last quoted calls for the application to the block C *first* of cement and *afterwards* of water sufficient to moisten the coating B (Ib. lines 91-92). It will hardly be seriously contended that there is any material difference between a method which calls for first applying cement and afterwards the water as Haddock does, and a method involving only the reversing of the order of the application of those ingredients. The result in each

instance is the same. In any case, the reverse order of such application is described in lines 30-37 of the patent to Goode, Defendants' Exhibit F. It is certain that no proof of any difference in the methods is attempted, for the obvious reason that it would defeat plaintiff's theory upon which infringement is predicated. Shope himself testifies (Record, p. 84) that it is immaterial whether the water goes on before the cement or after it. It may be, therefore, fairly accepted that one mode of application is the full equivalent of the other.

Plaintiff does, however, contend, apparently in all seriousness, that because Haddock shows his waterproof stratum B enclosed between two strata A and C, the same *method* of making a waterproof stratum claimed in the Shope patent is patentably different from the Haddock *method*, for the sole reason that Shope *applies* his so-called waterproof coating to the outside of a cement block, instead of to some other part of it. If the idea of an outside waterproof coating were new, or if Shope's claim were for a product—a brick, for example—there might, perhaps, be some grounds for insisting upon the merit even of such a distinction; but as the case stands the distinction does not apply, and there is no force whatever in the contention. Shope has no claim to a product; and the idea of an outside waterproof coating was old, as the patents to Goode and Davies abundantly show.

The only problem the Shope patent offers to solve was that of making a cement block waterproof.

That problem, we repeat, Haddock had solved in 1894, when he filed his application fifteen years ahead of Shope. Even conceding, *arguendo*, that Haddock does not propose in so many words to make the *outside face* of a block waterproof, yet he does propose (line 95) to provide a block with “a stratum impervious to moisture,” and shows every step of the alleged Shope method. Suppose that a “Shope brick” having a waterproof face on one side were set with said face on the inside of a wall, would that alter the case in respect to the method of making the “Shope brick”? Yet plaintiff in this case would seriously contend that the mere selection of a particular part of a brick for the application of his process will support his patent. When Haddock has applied his stratum B to his stratum C he has made a “waterproof faced cement block,” substantially all that Shope claims, and by the very method Shope describes. The only distinction is that Shope prefers to ultimately employ his so-called waterproof stratum for the outside face of his block, while Haddock, after he has made a “Shope block,” through application of his stratum B to stratum C, elects to cover stratum B with another stratum A. This involves no change of method or result in respect to the combination of B and C, but only an *addition* to that combination.

Mr. Werner, plaintiff’s expert witness (Record, pp. 203-4), does indeed attempt a fine-spun differentiation of the disclosure of the Haddock patent from Shope’s alleged invention, but therein he disregards

the fact that Shope claims to have discovered nothing more than a new method. His *ad captandum* argument directed to consideration of a *ham sandwich* (Record, p. 205), however homely and confident reference thereto may be, is inept, since there never was any sort of a mystery in the making of a ham sandwich. Even a ham sandwich with one outside layer left off would still be a ham sandwich, *pro tanto*; but the witness manifestly labors heavily to carry the load "*for my client*" (Record, p. 197). The same witness, in his zeal for "*his client*," eventually loses himself in a fine abstraction to which this court will hardly subscribe, namely, that *a valid patent may subsist solely in a manner of description rather than in the invention described*. That is what the eminent expert, Mr. Werner, says, substantially in so many words, when, commenting upon the Shope patent, he attempts to distinguish the subject matter of that patent from the prior art. (Record, pp. 184; 199, last Ans.; 203-4; 206, first Ans.; 211.)

Our contention is that the evidence afforded in the Record, in the File Wrapper and Contents, and in the patents heretofore considered, shows that the alleged invention described and claimed in the Shope patent is, in all substantial and material respects, disclosed in the art subsisting prior to any date of invention alleged by Shope.

Shope was operating in an old and crowded art, and advances no evidence to support any pretention to being regarded as a pioneer inventor.

The proposition of law upon which we mainly rely to support said contention is set forth by the Supreme Court in the following language:

“It is settled by many decisions of this court, which it is unnecessary to quote from or refer to in detail, that the application of an old process or machine to a similar or analogous subject *with no change in the manner of application and no result substantially distinct in its nature*, will not sustain a patent, even if the new form of result has not before been contemplated.” (Cases listed.)

Pennsylvania R. R. Co. v. Locomotive Truck Co., 110 U. S. 490; 28 L. Ed. 222, at 223.

In a later case the Supreme Court, to like effect, says:

“The Olmstead patent, therefore, covers an old process applied to the same subject, with no change in the manner of applying it, and with no result substantially distinct in its nature.”

Western Electric Mfg. Co. v. Ansonia Brass and Copper Co., 114 U. S. 447-453; 29 L. Ed. 210, at 211.

Knapp v. Morss, 150 U. S. 221; 37 L. Ed. 1062, to the same effect, also holds, page 229, there can be no infringement if defendant leaves out a single element of the patentee's combination.

It appears from the foregoing decisions that a *patent for a process must cover one which comprehends change in the manner of application and a result substantially distinct in its nature*, or it cannot be sustained. This is elementary patent law.

The plaintiff herein has made showing neither of a change in the manner of the application of an old process nor of a result substantially distinct in its nature.

Wherefore, we maintain that the patent sued on is invalid.

Deeming the foregoing conclusion to be inevitable, we were content at the trial to rest the case mainly upon that alone; but since the court below has sustained the patent, we are constrained thereby to argue the matter more at length upon appeal.

II.

NO INVENTION DISCLOSED IN PATENT SUED ON

Admitting, contrary to our conviction and solely for the sake of argument, that the substance of the Shope patent is not actually anticipated in the prior art, we nevertheless maintain that, in the eye of the law, nothing shown by the patent involves invention, and that the patent is therefore invalid, independently of any other consideration. The points of law upon which we rely are, we believe, well established in the authorities below noted.

That nothing less than invention will sustain a patent is clear. The patent statute (R. S., Section 4886) provides only that a patent may issue to “any person who has *invented* or *discovered* any new and useful art, machine, manufacture or composition of matter, or any new and useful improvement thereof.”

That the subject matter of every patent must be the creation of nothing less than invention appears from the statute itself, and is recognized by all the courts.

Thompson v. Boisselier, 114 U. S. 1; 29 L. Ed. 76.

Pearce v. Mulford, 102 U. S. 112; 26 L. Ed. 93.

In the case of Atlantic Works v. Brady, 107 U. S. 192; 27 L. Ed. 438, at page 440, Justice Bradley, in an opinion which has become classic, sets forth some of the distinctions between what is invention and what is not, in the following forceful and instructive language:

“The process of development in manufactures creates a constant demand for new appliances, which the skill of ordinary head workmen and engineers is generally adequate to devise, and which, indeed, are the natural and proper outgrowth of such development. Each step forward prepares the way for the next, and each is usually taken by spontaneous trials and attempts in a hundred different places. To grant to a single

party a monopoly of every slight advance made [in the instant case there is no advance], except where the exercise of invention, somewhat above ordinary mechanical or engineering skill is distinctly shown, is unjust in its principle and injurious in its consequences. The design of the patent laws is to reward those who make some substantial discovery or invention, which adds to our knowledge and makes a step in advance in the useful arts. Such inventors are worthy of all favor. It was never the object of those laws to grant a monopoly for every trifling device, every shadow of a shade of an idea, which would naturally and spontaneously occur to any skilled mechanic or operator in the ordinary progress of manufactures. Such an indiscriminate creation of exclusive privileges tends rather to obstruct than to stimulate invention. It creates a class of speculative schemers who make it their business to watch the advancing wave of improvement, and gather its foam in the form of patented monopolies, which enable them to lay a heavy tax upon the industry of the country, without contributing anything to the real advancement of the arts. It embarrasses the honest pursuit of business with fears and apprehensions of concealed liens and unknown liabilities to lawsuits and vexatious accountings for profits made in good faith."

A statement to like effect was made by Judge Phillips in the case of *Tiemann v. Kraatz*, 85 Fed. 439.

Indeed, nearly a hundred cases involving that rule have now (1917) been adjudicated.

Walker on Patents, (5th Ed.) page 27. Cases collected in note 18 on said page.

“Industry in exploring the discoveries and acquiring the ideas of others; wise judgment in selecting and combining them; mechanical skill in applying them to practical results; none of these are creation. None of these enter into the inventive art.”

Robinson on Patents, Vol. 1, page 117.

The question of invention is always a question of fact and not a question of law.

Pappenhusen v. Fakke, 5 Blatch. 49.

Shuter v. Davis, 16 Fed. 564.

Keene v. New Idea Spreader Co., 231 Fed. 701.

But these questions of fact are to be determined by means of the rules of law.

Walker on Patents, (5th Ed.) p. 59, par. 42.

Questions of novelty are also questions of fact.

Battin v. Taggert, 17 How. 77; 15 L. Ed. 37.

Turrill v. Railroad Co., 1 Wall. 491; 17 L. Ed. 668.

In the Packing Company Cases, 105 U. S. 566, 571; 26 L. Ed., p. 1174, Mr. Justice Woods said :

“All *improvement* is not invention, and *entitled to protection* as such. Thus, to entitle it, it *must be the product of some exercise of the inventive faculties*, and it must involve something more than what is obvious to persons skilled in the art.” (Citing cases.)

Having in the line of authorities premised so much, it is next in order to consider what is the invention alleged in the Shope patent.

Intending to omit repetition of any part of what has been already set forth under the Head I herein, we assume it to be established beyond controversy that Shope proposes to take an old cement block “of suitable material in a semi-dry state”—to quote from claim 1 of the Shope patent—and to form thereon a waterproof face by the application of cement and water, *either without agitation*, as in claim 1, *or with agitation*, as called for in claim 2. The only way of applying cement and water to a block is to apply it, to paraphrase Senator Sherman’s celebrated observation upon the question of “resumption.” The one word “applying” in the one instance, exhausts the subject; and the single word “agitation” exhausts it in the other instance, if indeed “agitation” were not actually anticipated in the prior art, as shown for instance in the Thomas patent, lines 47-54.

“Applying” and “agitating” are both munificently shown to be old in the art. The only possible variation of the method of application would be to apply

the water and the cement separately one after the other; but that, too, is old. Haddock applies the cement first and the water afterwards. Goode first provides the water and then the cement. There was nothing of novelty, much less of invention, left for Shope to put into his patent; but all he ever relied on was to apply water first and then add cement to the water. That, we submit to be a variation too obvious to dignify by the name of invention. Unless he make good his assertion, as he has failed to do, his suggestion of a new function effected by the variation is neither more nor less than what the examiner in his rejection of April 19, 1910 (Record, pp. 236-7), declares to be old, and what Shope by amendment thereupon concedes to be old.

III.

PATENT SUED ON IS INOPERATIVE

It may be proper to state here that we use the term "inoperative" throughout this brief in the sense in which it is commonly used and understood in ordinary patent parlance.

If plaintiff would stick to the argument (Record, pp. 239-240) which, alone, induced the Patent Office to allow the patent, the case would be different from the one presented here; but that argument is in the instant suit abandoned utterly. The argument advanced before the Patent Office in support of the amended claims is, that by first applying water to the block, and then adding cement to the water,

there is obtained, in some way not disclosed, a new result, namely, penetration by the cement of the pores or interstices of the block. That argument evidently had weight with the Patent Office examiner. Because of his being one skilled in the art, he must have recognized the mere statement for a paradox, which it is. It was so paradoxical as to have made it the duty of the examiner to demand proof of the truth of the statement. Such a demand would be in accordance with precedent well recognized in the Patent Office, where there is a standing requirement that demonstration of operativeness must be made in any application for patent for a machine purporting to involve the principle of "Perpetual Motion." The two instances differ only in respect to the fact that the idea of perpetual motion is an obsession of the mind which keeps laying hold upon different individuals. That it is possible by any means to cause cement to penetrate the interstices of a cement block made of compacted sand, cement and water, although peculiar to Shope, is as incredible to one skilled in the art to which it belongs, as any dream of perpetual motion that ever entered the human brain.

Had the Patent Office demanded proof of operativeness in this case, we make bold to say this patent would never have issued; but no such demand was made. The Patent Office merely accepted an unsupported *ex parte* statement, and allowed the application to go to issue on that statement.

Nevertheless, without any proof at any time of operativeness, which was strenuously denied at the trial, *plaintiff* now even *seeks to enlarge the claims of his patent* to cover the acts of defendants in doing no more than what the court may take judicial cognizance of being within the right of everyone to do, namely, spreading mortar on a brick.

In order that the court may understand beyond a doubt that there is no extravagance in the last statement, its attention is invited to Shope's testimony (Record, pp. 78-79), where he states :

“Q. You have testified that your invention is conceived by you to have consisted in incorporating more water in semi-dry brick, is that right?

A. On the face.

Q. Please explain just what you mean by that, so the court will understand it.

A. By puddling the face of the semi-dry product with additional water, or trowelling.

COURT: Trowelling into the surface?

A. Trowelling, floating, stippling, whatever the *addition* might be.

Q. The covering of a surface made of porous material, or specifically of cement mixture, with a trowelled coating was not new at that time, was it?

A. I never had heard or seen of it, or any green product faced in like manner, or I would not have

sworn to be the true and original inventor of my patent.

Q. Then you conceived at that time that you were the first one to trowel a coating upon (a) cement base?

A. Upon a cement brick or block.

Q. You draw a distinction between a cement brick and a sidewalk, for instance?

A. I certainly would."

Contrast that "distinction" with Shope's attitude towards the examiner's rejection (Record, pp. 237-239).

But humoring the argument even further, if *the mere application* of a mixture of cement and water to a cement block will of itself result in causing the cement to follow the water into the interstices of the block, that very application was made years before Shope pretends to have entered the field of invention.

Plaintiff's main witness, Mr. Werner (Record, p. 210, lines 15-16), referring to Defendants' Exhibit L, Davies patent of 1902, testifies: "You would get *exactly the same result* Shope does, provided you dip intelligently."

Defendants' Exhibits F, G, H, V and W each, as well as said Exhibit L, show precisely such application. Besides, Ward (Record, p. 142), Starks (Record, p. 132), and Fleming (Record, pp. 116, 123), each in turn testifies that *such application is very old in the art.*

We agree with Mr. Shope, as he is last above quoted, that there is no difference in the result obtained in respect to applying cement and water to a porous block, between the method of applying water first and the cement afterwards, and the method of first applying the cement and afterwards the water. The methods are substantially one and the same.

We go further, however, and deny that it is possible to cause cement to enter the pores, interstices or voids, which are present between particles of sand alone when the same are compacted in mass. If the mass of sand alone is enriched by addition of cement and enough water is added to act upon the cement, which is Shope's block before it is faced, the obvious result will be to fill up some of the voids which were present in the sand alone, without cement, and insofar to reduce the permeability of the composite mass.

The fact that cement will not enter the interstices aforesaid is testified to by defendants' witnesses Starks (Record, pp. 131-5-6-8), and Fleming (Record, p. 119), as well as by defendant Ward (Record, pp. 144-5). Dr. R. K. Strong, professor of chemistry at Reed College, not only testifies, after experiment, to the fact (Record, p. 157), but gives (Record, pp. 157-167, 170) undisputed scientific reasons to account for the fact, in substance as follows:

Cement does not dissolve in water, but when added thereto is held in suspension therein so

long as the mixture is liquid. If the cement entered into solution in the water the liquid would be homogeneous and would penetrate the pores or interstices aforesaid as readily as water does; but A MIXTURE OF CEMENT AND WATER DOES NOT FORM A SOLUTION. Therefore, the particles of cement being carried in suspension in the water, and each particle being a solid relatively larger, in each instance, than said pores or interstices, cannot enter them.

Professor Strong explains that a mixture of cement and water is, in effect, a muddy water towards which a mass of compacted sand acts after the manner of an ordinary filter to clarify the water of the mixture by separating the cementitious silt out of it.

The familiar instance of the filtration of water by passing it through sand, as in the old sand filter which was formerly in common domestic use, is a fact of which the court may well take judicial notice. The court is doubtless acquainted, likewise, with filters of the Pasteur filter type, which have been in familiar use for forty years. They act precisely like the old sand filter, and differ from it only in the employment as a substitute for the sand of a filtering medium of "biscuit" which is baked fictile material in its unglazed porous state, or instead thereof artificial or natural stone. The result effected is not only an economy of space, but a degree of filtration that excludes even microscopic animalculi as well

as visible solid matter. Now, plaintiff's cement block is, in the art to which it belongs, generally known as "artificial stone," as patents of record, for example, Defendants' Exhibits F, G, V and W, abundantly prove.

We, therefore, deem ourselves to be safe in saying, as we do say to this court, that the proposal the Shope patent presents, of causing water "to carry the cement into the pores" of his block (Shope patent, line 70), is absolutely a paradox. Nothing to support it has, nevertheless, ever been even so much as advanced.

Mr. Werner's testimony (Record, p. 176), that the cement, of a cement and water mixture, will enter the "voids" of a cement block *if they are large enough to admit them*, though vague on this point and hardly disingenuous, is true of course in a broad sense, as Dr. Strong (Record, p. 170) frankly states; but if his endeavor to expand the plain meaning of the term "pores" or "interstices" of a block composed of sand, cement and water, so as to include voids large enough to admit the entrance of cement, should succeed, it would at the same time throw this case out of court, because a term so broad would include the subject matter of the Hassam patents.

The Hassam patents were not set up in the answer, but they are fairly in the record. They were referred to at the trial by counsel for plaintiff (Record, p. 133), and in reply to objection by opposing counsel, Judge Bean (*Ib.*) observed:

“I suppose counsel assumes that most people know what Hassam pavement is.”

The assumption is somewhat anomalous; but, howbeit, the reported case entitled *Hassam Paving Co. v. Consolidated Contract Co.*, 215 Fed. 114, is accessible to the court. Said case makes clear the nature of the said patents, three in number, and, also, through their identification by their numbers, that each of them antedates the Shope patent. In that case Judge Bean, at page 115, says:

“The manner of constructing the pavement, as described in the patents in brief, is: First, covering the sub-grade of the street or road with a layer of uncoated broken stone and compressing the same by a heavy steam roller, *thus reducing the voids to a minimum*. Second, after the stone has been thus compressed, it is grouted by pouring over it in place a mixture of cement, sand and water and agitating the same by a steam roller during the process of grouting until the grout flushes to the surface, thus expelling the water and filling out the voids or spaces between the stones with grout.”

In respect to the Hassam pavement there is no difficulty in carrying the grouting, which is simply cement, sand and water, as stated above and again on page 116 in said decision, to enter the voids in the “layer of uncoated broken stone” to which it is applied in constructing the Hassam pavement. The

voids there are large enough, to be sure, to admit the grouting, but they do not present the problem which confronted Shope when he sought to obtain his patent. If the problem had not been recognized by the Patent Office to be a distinct one, Shope's patent would not have issued. His application therefor would have been rejected, of course, on the Hassam patents.

As differentiated from Hassam, Shope states definitely in his patent, lines 55-57: "In the present method the block is first formed in the usual manner by mixing sand and cement." It is unnecessary to quote more. He is careful not to limit the constituents of his face-forming materials to neat cement, but not so in respect to the block itself. That, he specifies is made of sand and cement, and the bricks introduced by him in evidence are made of those materials.

It is therefore clear, we submit, beyond controversy that Shope proposes to cause cement to enter the minute pores or interstices of a block, said block being made by mixing moistened sand and cement pressed and tamped in a mold.

THE STEVENS PATENT—DEFENDANTS' EXHIBIT A

While we deem it equally clear without further evidence than that already referred to, that what Shope proposes to do cannot be done, yet it happens that even a negative is substantially proved

in this case by the patent to Charles W. Stevens, No. 624,563, dated May 9, 1899, Defendant's Exhibit A.

The Stevens patent, it should be premised, was sustained after litigation protracted during many years through all the courts, the Supreme Court having refused to issue a certiorari.

We have, because we considered it highly instructive, gone to considerable trouble and expense to obtain a certified copy of the record of the Stevens case presented in the Circuit Court for the District of Massachusetts, and sought to offer it in evidence (Record, pp. 152-155), so that we might read parts of it into the record at the trial, but the Judge excluded it (Ib., p. 155), stating that it could be used in argument, if desired. We have it here, if the Court wishes to consider it.

However, the case is reported in sufficient necessary detail, in the case entitled *Emerson & Norris Co. v. Simpson Bros. Corporation*, 202 Fed. 747. It is significant that it resembles the present case in that the true nature of the invention was arrived at with difficulty. Judge Hale of the trial court did not appreciate it, but his decision the court of appeals reversed.

In that case, Judge Putnam, speaking for the court of appeals for the First Circuit, recites (p. 748) claim 1 of the patent, reading as follows:

“1. The process of forming artificial stone consisting in molding the stone compound while

in a plastic or semi-liquid state in or on a mold formed of relatively dry sand and then allow the mass to set until the sand absorbs the surplus moisture from the compound, thereby converting the latter to a solid or nonliquid form, substantially as and for the purpose set forth.’ ”

Immediately following the claim appears the following language:

“The peculiar features of this claim are that the mold is formed of ‘relatively dry sand,’ which ‘absorbs the surplus moisture from the compound.’ It might seem to a non-expert doubtful whether this method of molding could succeed; but not only the complainant shows that it did succeed, but the respondents’ attempts to make use of it confirm the complainant’s position in this respect.”

At page 751, Judge Putnam, reaching a conclusion, says:

“The evidence makes clear that the ‘workmen were forming molds of relatively dry sand, using wooden patterns,’ and that they poured the mixture ‘into the molds which they had formed in the sand’; and such clearly was the entire process as shown by this witness. Of course, as we have already said, the question at once arises in the lay mind whether this would be an effectual process; but the leading expert for the complainant, Carpenter, testified as follows:

“The fact that a dampened sand mold would hold its shape and at the same time absorb water so as to compact a nearly liquid stone compound is certainly a phenomena, which would never have been believed had it not been tried. * * *

“This discovery, which is set forth in the claim of the Stevens patent in suit, was the first disclosure to the world of the process of making an artificial stone of a homogeneous structure resembling natural stone, and in many ways superior to natural stone, and which was adapted for use in building of the best style of architecture.’

“Therefore this was plainly the entire process of the patentee.”

The Stevens patent, as explained by the aforesaid decision sustaining it, we confidently submit, not to prove anticipation of the Shope “invention,” but to show that what Shope claimed to be able to do cannot be done, that the Shope patent is, in fact, inoperative. The report of the litigation of the Stevens patent, as recognized by the highest courts, shows that a large industry was built upon the Stevens invention whose principle of operation contradicts the theory advanced in the Shope patent. The Stevens patent and the Shope patent, by the very physical nature of the substances upon which each relies to reach contradictory ends, respectively, cannot both be valid.

Shope claims that if a mixture of cement and water be applied to a porous cement block which he specifies to be made of compacted sand, cement and water, the cement of said mixture will enter the pores or interstices of the block. Stevens claims, and satisfies the Courts by proof, that a sand mold, which is by nature more porous than Shope's block, will exclude the cement of the mixture so as to mold "the stone compound wholly in sand." (Stevens patent, p. 3, lines 55-56.)

If the Stevens patent is valid, as it has been held to be, the Shope patent is invalid, because the validity of the Stevens patent has been sustained as it must be if at all, upon the recognition of a physical law whose operation contradicts that theory which is necessary to support the Shope patent, and plaintiff, even in the face of the Stevens patent, offers no evidence so much as tending to support Shope's theory. That fact together with the undisputed proofs adduced in the instant suit, *supra* pp. 47-49, and the recognition by the courts of the validity of the Stevens patent should, we think, prove, to say the least, most persuasive, and to all intents convincing.

Wherefore, we submit that the Shope patent is inoperative, and is, for that reason, if for no other, invalid.

IV.

DEFENDANTS DO NOT INFRINGE

Despite Judge Bean's statement in the second sentence of the second paragraph of his opinion that

there is "no room for controversy about the infringement" which he holds to be proven, we insist that the logical conclusion must be directly opposite thereto, namely: that there is no infringement in this case. That conclusion is supported by the presumption of innocence to the benefit of which defendants are entitled.

If the grounds upon which the opinion of validity of the patent rests are unsound, as we hold them to be, in the particulars hereinbefore set forth, it follows that they would lead to an erroneous conclusion upon the question of infringement. To put the concrete case, if the patent sued on is entitled to that breadth of construction which plaintiff contends for and which the Court below gave it, then, we say in all candor, that of course defendants are infringers. It is admitted that defendants were making cement bricks when they were enjoined in this suit; but plaintiff does not and cannot deny that they had a perfect right to make a cement brick or block simply by forming and tamping it in a mold. That manner of making such an article Shope concedes in his patent (lines 55-58) to have been "the usual manner" at the time he made his application. Therefore the charge of infringement made against defendants must rest, not upon their manner of making a brick, but, upon the manner of treating it after molding it in order to form upon it what Shope calls a waterproof face.

There is no controversy as to the fact that in order to make such a face Shope "applies" a coating con-

sisting of a mixture of cement and water to a molded brick; that the defendants apply the same sort of a coating to a molded brick; and that the result may be in each instance regarded as one and the same.

It is this apparent identity of process and product in respect to a method *as practiced* by both parties to this suit which deceived Judge Bean; but what plaintiff does actually practice, and what he is entitled to monopolize by patent, are two very different things.

It must be shown, not that defendants do what plaintiff *does*, but it must be made to appear that they do what plaintiff has the legal right under the terms of the patent sued on to exclude them from doing.

Infringement of a patent in any given case must be predicated upon the precise scope of the patent in the eye of the law. The said scope of the patent can only be ascertained first by critical analysis of its subject-matter, and afterwards submitting it to judgment by comparing it with the prior state of the art, because, logically, judgment itself "consists in the comparing together in the mind of two objects of apprehension and pronouncing whether they agree or disagree."

In the language of the opinion rendered below, there is not evidence that the court bestowed critical attention upon either the terms of the patent sued on, or upon the prior art upon which, under the law, the patent is predicated. The Court below

says: "Now the patent is the first one issued covering *this method or process.*" It goes on to declare *'the process* described in plaintiff's patent is not any where disclosed directly by the prior art." Both of those statements are premises which must be true in order to support the conclusion. What the method or process described and claimed in the patent sued on is, does not anywhere appear to have been properly determined. Otherwise, it would have been, we venture to assert, impossible for the court to have been led into the error into which it has fallen. Had proper analysis of the claims been made, it would appear beyond possible doubt that the patent is limited at best to a narrow method or line of procedure, and one quite beside any course pursued at any time by defendants.

What defendants did is not controverted. It was simply to spread upon a brick, and purposely to avoid agitation (Record, p. 141), a thin coat of mortar, made by mixing together cement and water on a mortar board. Transfer of the mortar from the board to the brick was effected by the use, *in the usual way*, of an ordinary plasterer's steel trowel. The said process is so old that the mind of man runneth not to the contrary. It is the very common law of the plasterer's handicraft.

"A process, like a combination, is an entirety, and the charge of infringement in such a case is not made out unless it is alleged and proved that the entire process is employed by the respondents."

Gould v. Rees, 15 Wall., 82 U. S., 187-195;
21 L. Ed., 39-41.

It is of no material consequence that the face coating is applied to a green brick or block because, as we show elsewhere from the Record (*supra* p. 32), neither a green block nor the waterproof face coating of a green block was anything new in the art when application was made for the Shope patent.

Moreover, the operation of curing a green brick or block consists only in drying the moisture out of it. The drying of a cement block does not change its structural formation, does not in any wise alter the pores of interstices necessarily left between the particles of which it is composed, however closely they may be compacted, as by tamping for instance. If Shope had indeed invented, as he claims to have done, a method of causing water "to carry the cement into the pores" of a green brick, the same method would effect the same result if applied to a porous dry brick.

Wherefore we insist once again that Shope is asserting a claim broadly to the art of plastering the face of a brick—that and nothing more.

DECEPTIVE APPEARANCE OF PENETRATION

No doubt the attempt will be made to convince the court, by reference to the material exhibits in the case, that the Shope method effects penetration of the pores of a block; but the argument is altogether a

specious one. It may appear that there is a difference, however slight, in the thickness of the face of the coat of plaintiff's and defendants' bricks, and plaintiff would have it believed that the difference is proof of what is claimed for the Shope method, namely, penetration of the pores of a block. That is not true. If it were, how could such difference exist if plaintiff and defendant employ the same method as the former alleges? The apparent difference referred to exists now and then, not necessarily but not unfrequently, but is wholly due not to penetration of the pores of the brick by the cement of the coating mixture, but to an entirely different cause. That cause produces no beneficial result, but if it did, it is not claimed in the patent. On the contrary, that cause is directly at variance with the claims of the Shope patent. It results not from penetration of the pores of the block by the cement of the face coating, but results from a stirring up by violent agitation of particles of sand from the block and commingling of them with the cement slurry or mortar mixed *IN SITU* according to Mr. Werner's testimony (Record, p. 194). Precisely the same *appearance* would result from employment of a face coating consisting of an initial mixture of sand with the cement as the Shope patent (line 63) contemplates. There is no advantage but rather detriment in the stirring up of the sand derived from the face of a block by agitation and the consequent commingling of it with the material of the plastic face coating; and it is to avoid that very result that defend-

ants purposely employ a steel trowel and a light stroke thereof as defendant Ward's testimony shows (Record, p. 141).

Just here it is deemed that the statement made elsewhere herein will bear repetition for the sake of emphasis, namely, that the Shope patent purports only to be drawn to an improved art—a method—and not to any product whatsoever.

For commentary on that fact, definition of a process in contemplation of law, and, by contrast, the legal distinction between a product and a process are deemed to be not superfluous here, although we are well aware that such matters are elementary and familiar to the mind of the Court.

Justice Bradley, for the Supreme Court, says:

“A process is a mode of treatment of certain materials to produce a given result. It is an act, or series of acts, performed upon the subject matter to be transformed and reduced to a different state or thing.”

Cochran v. Deener, 94 U. S., 780; 24 L. Ed., 139, p. 141.

That a process and a product are two different inventions, see

Robinson on Patents, Vol. 1, Sec. 167, last paragraph, ^{cf} note 1, where authorities are collected.

That method and product are separable inventions, supporting separate patents one of which may be valid and the other not, see

Dunn Wire-Cut Lug Brick Co. v. Toronto Fire Clay Co., (6 C. C. A.), 259 Fed. 258-265 (p. 261) ; citing Rubber Co. v. Goodyear, 76 U. S. (9 Wall) 788; 19 L. Ed. 566.

The necessity for observing DISTINCTION BETWEEN PROCESS AND PRODUCT PATENTS is noted by the Court of Appeals for the Third Circuit in the following language:

“But before inquiring what the patent is for, it is well to understand clearly for what it is not, namely, that it is not and does not purport to be for a product. In other words, it is a process, and not a product, patent. It is, as the patent states, for a ‘process of manufacturing armor plates’. *This distinction between process and product patents must be kept in view in considering patents, such as are here involved, otherwise we are apt to conclude from the mere fact that similar products are made by two different persons that one is infringing the other’s rights. On the contrary, in such cases, the real test of infringement is not identity of a product, which is not patented, but identity of patented process in producing an unpatented product.*”

Fried, Krupp Aktien-Gesellschaft v. Midvale Steel Co., 191 Fed., 588-612 (p. 594).

SUMMARY

By way of summary of some of the points raised, counsel for defendants submit the following conclusions arranged according to the several heads under which they are discussed at length in the foregoing pages, and to which, *seriatim*, reference is made for explication hereof in detail.

I. The patent sued on is invalid because its subject matter is fully anticipated in the prior art.

II. The patent sued on is invalid for the specific and sufficient reason, besides the broad question of anticipation discussed under the first head, that it discloses no *invention*, in view of the state of the art which antedates it.

III. The patent sued on is invalid because the invention it purports to describe and claim is wholly *inoperative* to effect the result it is alleged to effect or any novel result whatsoever.

IV. Defendants do not infringe the patent sued on, because they *have not at any time employed the method* DESCRIBED AND CLAIMED in said patent.

Respectfully submitted,

ATKINS & ATKINS,
Attorneys for Appellants.

UNITED STATES PATENT OFFICE.

EDWARD GOODE, OF BARTOW, FLORIDA, ASSIGNOR OF ONE-HALF TO
THOMAS A. GOODE, OF SAME PLACE.

ARTIFICIAL STONE

SPECIFICATION forming part of Letters Patent No. 518,239, dated April 17, 1894.

Application filed August 30, 1893. Serial No. 484,390. (No specimens.)

To all whom it may concern:

Be it known that I, EDWARD GOODE, a citizen of the United States, residing at Bartow, in the county of Polk and State of Florida, have invented certain new and useful Improvements in Artificial Stone for Monuments, &c.; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention consists of an artificial stone especially adapted for use in the making of monuments,—and in the process of making the same. For the main portion, or body of the stone I employ clean white sand, or marble dust, entirely freed from soil or other foreign substance, and pure Portland cement, the proportions of these ingredients being from one to two parts of sand to one part of the cement. These ingredients I thoroughly mix in a dry condition, and then add thereto sufficient water to make a stiff mortar, which when of the desired and of a uniform consistency, is placed in the mold which gives the desired shape to the article being made. When the mold is full, and the surface is properly dressed to give the desired smoothness of surface, it is allowed to stand for a few minutes so that the water will gather upon the surface. I then sift pure cement upon the surface, which may be smoothed if desired after the cement has been placed thereon, and then allow it to stand until the water again collects, after which cement is again evenly and uniformly sprinkled upon the surface, and this operation is repeated several times. The mold containing the above described composition is now left for a suitable length of time, usually for about twenty-four hours, to harden. When sufficiently hard, but while yet moist, I saturate the surface with a strong solution of lime-water, care being taken to remove, by a soft rag or sponge, any surplus lime which may collect upon the surface. This saturation is repeated as often as may be necessary during two or three days and until the surface portion of the artificial stone becomes thoroughly saturated with the lime-water.

It will be observed that I do not use lime in the composition of the body-portion of the artificial stone, as I have found that this is objectionable for the reason that when lime is used the body of the stone is caused to crack by reason of the shrinkage of the lime in the process of drying, whereas when the body of the stone is made only of sand and pure cement, as described, this cracking is avoided, and a more uniform, solid and durable stone is the result. It will also be noticed that upon the body-portion of the stone is formed a skin or surface portion of pure cement. This I find to be very advantageous in that it makes a surface of great hardness, and to which can be imparted a smoothness of finish which cannot be obtained with the composition which makes up the body of the stone. A stone having the surface thus prepared is especially adapted to receive clean or clearly cut impressions from letters or other designs which may be laid thereon, and therefore is especially useful in the making of monuments upon which it is desired to place inscriptions.

In order to make the impressions in the surface, I use dies or type shaped to form letters, figures or other desired designs, and place them upon the surface of the stone, and cause them to be embedded therein to the desired extent by slight pressure.

I find that by treating the surface of the artificial stone, produced as above described, and while it is still moist, with lime-water, a marble-like effect is produced which adds much to the appearance of the stone. The whiteness which is imparted to the stone by the lime contained in the lime-water is of a lasting quality and is not affected by exposure to the weather.

In the making of monuments or other articles from the composition which I have described, I ordinarily prefer to fill the molds about half full with the composition of sand and cement, and then place in the molds iron rods, which being embedded in the article, give strength thereto without impairing its appearance.

Any suitable tools may be employed for the finishing of the surface of the stone, both be-

fore the surface coating is applied thereto, and after such surface coating has been placed thereon.

5 It will be understood that a desirable artificial stone is produced without the treating of the surface with the lime-water, although I prefer this step as it improves the appearance of the finished article.

10 Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. An artificial stone having a body portion of sand and hydraulic cement, and a skin of pure cement impregnated with lime, whereby the skin portion of the stone has a permanent, 15 white, marble-like appearance, substantially as set forth.

2. The herein described process of making artificial stone, which consists in mixing together pure sand and Portland cement with 20

sufficient water to make a thick mortar, then molding this composition, then forming a surface by sifting or placing thereon dry hydraulic cement, and then finishing the said surface, substantially as set forth. 25

3. The herein described process of making artificial stone, which consists in forming a body of a mixture of sand, hydraulic cement and water, then applying thereto a surface or skin of pure hydraulic cement, allowing the stone thus formed to harden, and then treating the surface with lime-water, while the stone is yet moist, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD GOODE.

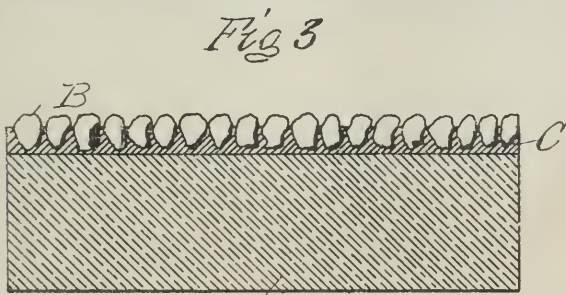
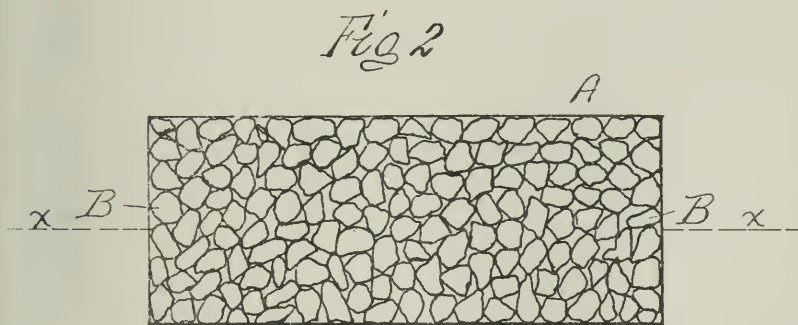
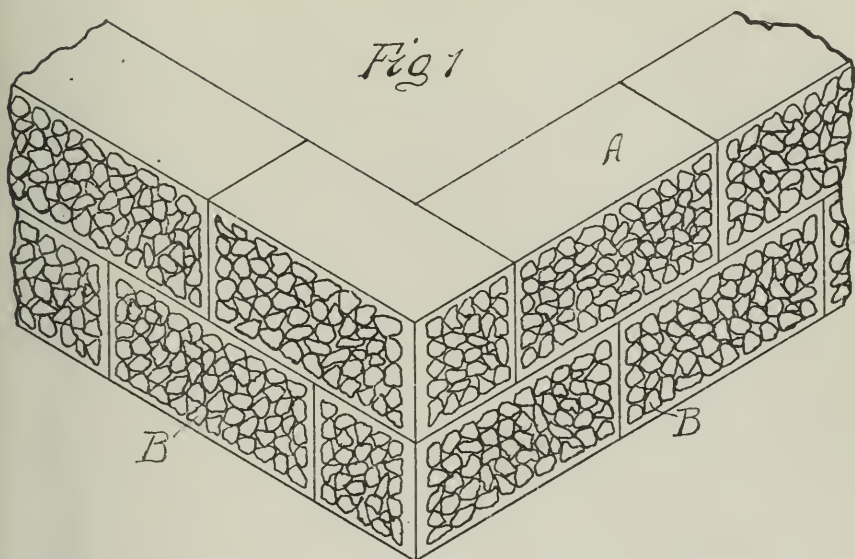
Witnesses:

FRANCIS A. WOLFF,
S. M. TATUM.

A. FEDERICI.
BUILDING BLOCK.

No. 527,416.

Patented Oct. 16, 1894.



Witnesses

Alfred B. Watson

William M. Drew

D

Inventor

Antonio Federici

By John F. Kerr

Attorney

UNITED STATES PATENT OFFICE.

ANTONIO FEDERICI, OF PATERSON, NEW JERSEY.

BUILDING-BLOCK.

SPECIFICATION forming part of Letters Patent No. 527,416, dated October 16, 1894.

Application filed March 30, 1893. Serial No. 468,261. (No model.)

To all whom it may concern:

Be it known that I, ANTONIO FEDERICI, a citizen of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Building-Blocks; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The object of my invention is to provide an artificial stone for building purposes which shall be durable and ornamental and which can be cheaply and easily manufactured.

The invention consists of a stone comprising the following elements: cement, sand, and pebbles, arranged as hereinafter described and shown in the accompanying drawings.

In the drawings Figure 1 represents the corner of a wall built with my artificial stone. Fig. 2 represents the face of a stone showing the pebbles. Fig. 3 is a view of a section of my artificial stone through the line X—X, Fig. 2.

—A— represents the stone; —B— the pebbles; —C— a layer of pure cement, and —D— represents the other portion of the stone which is composed of cement and sand.

The portion —D— of the stone is composed of Portland cement and the best sharp sand, which I mix in suitable proportions and make or mold in any suitable size or shape. I then prepare some pure Portland cement and spread a layer thereof upon that exposed surface of the portion —D— which is to form the face of the stone. While the material is yet plastic, assorted pebbles, B, are partially sunk into the central part of the face or faces of the stone, a margin on said face being left unpebbled as clearly shown in Fig. 1, although it is obvious that the whole surface, as shown in Figs. 2 and 3, may be covered without departing from the spirit of my invention. The block is then left until it hardens.

Fig. 3 shows the composition of my artificial stone, —D— being the portion composed

of cement and hard sand, —C— being the layer of pure cement and —B— being the pebbles partially embedded therein.

When the stone is thoroughly dry and hardened the pebbles —B— cannot be extracted from the layer of cement —C— without breaking them.

I propose to use my artificial stone for building purposes for which it is peculiarly adapted, as the action of the weather produces no ill effect upon it; but by bleaching the pebbles rather enhances its beauty.

I am aware that in the construction of pavements, roadways, and walking surfaces, that gravel, sand and cement have been used for uniting the blocks or cobble-stones and that in some instances materials distinguished for their sharp, hard and angular and gritty character have been used in an artificial stone or a concrete walking surface, in order to prevent slipping, &c., and in other cases where metallic gratings have been combined with an under or body of cement or concrete; but I am not aware that a building block has ever been constructed with exposed surfaces consisting of very small pebbles partially embedded in a layer of pure cement.

I am also aware of a building block formed of a cement or concrete body with pieces of tiling, glass or other hard substances bedded therein flush with the surface of the sand; but in my stone the pebbles are very small and are only partially embedded in the layer of cement upon the exposed surfaces thereof.

I am also aware that it is not new to form a block for paving streets by covering a layer of bricks with cement and embedding therein a surface layer of cobble-stones of suitable size for resisting the wear incident to heavy traffic.

As I do not confine myself to pebbles of any particular color it is obvious that in ornamental trimmings on buildings, the arches, sills or cornices may be of variegated colors; and as I do not confine myself to any special shape, my artificial stone may be used in all sorts of mason work for walls, dwellings or other buildings, in all cases the faces or exposed portions of my stone being constructed

substantially as above specified with pebbles, partially embedded in a layer of pure cement on said faces.

With the above description of my invention, what I claim is—

A new article of manufacture consisting of a building block, the body portion of which is composed of a comparatively coarse material, the face or exposed surface being composed of finer material, such as Portland cem-

ent, into the surface of which pebbles, of substantially uniform size, are partially embedded, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ANTONIO FEDERICI.

Witnesses:

G. J. KERR,

W. M. DREW.

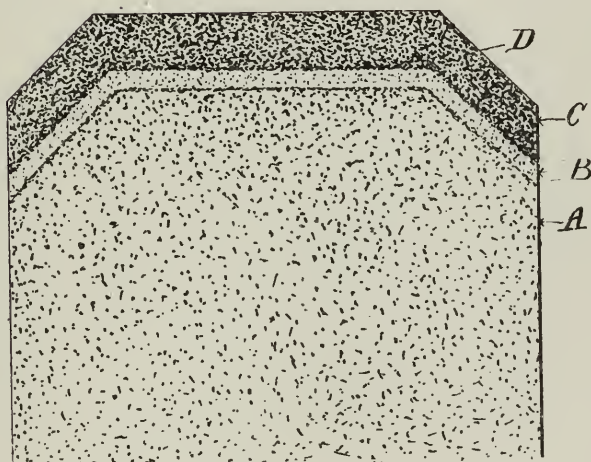
W. J. HADDOCK.

PROCESS OF CONSTRUCTING HYDRAULIC CEMENT BLOCKS

OR ASHLERS.

No. 531,842.

Patented Jan. 1, 1895.



Witnesses

Wm. B. Burdine
G. Arthur Pennington

Wm. J. Haddock, Inventor
by
Crosby & Worlan
Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM J. HADDOCK, OF IOWA CITY, IOWA.

PROCESS OF CONSTRUCTING HYDRAULIC CEMENT BLOCKS OR ASHLERS.

SPECIFICATION forming part of Letters Patent No. 531,842, dated January 1, 1895.

Application filed May 28, 1894. Serial No. 512,689. (No specimens.)

To all whom it may concern:

Be it known that I, WILLIAM J. HADDOCK, a citizen of the United States, residing at Iowa City, in the county of Johnson and State of Iowa, have invented a certain new and useful Process of Constructing Hydraulic Cement Blocks or Ashlers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a new and useful process of constructing hydraulic cement blocks or ashlers for the purpose of constructing or veneering walls of buildings, and it consists in the several steps hereinafter referred to and definitely pointed out in the claims.

Heretofore in the construction of cement blocks or ashlers for building purposes it has been deemed impossible to form the same by using natural hydraulic cements in conjunction with artificial or Portland cement and at the same time secure the requisite compactness and strength. It is further a well-known fact that, as heretofore made, of hydraulic cement, blocks when exposed to the elements will absorb a large amount of water, making the structure composed of them wet and cold.

The aim and purpose of this invention is to overcome such defects incident to the construction of hydraulic cement blocks or ashlers adapted for use in building or veneering purposes, by combining natural and artificial cement in one and the same block, but in different strata so that the artificial cement will be the surface for exposure, the natural cement forming the protected part of the block, thus combining great strength and economy.

In the accompanying drawing I have shown a cross-section of a preferred form of block as made by my method.

In said drawing A represents the protected part or base of the block formed of natural cement and sand.

B represents the water-proof stratum of hydraulic cement free from sand, and C represents the outer stratum or facing of the block, composed essentially of artificial or Portland cement and fine sand.

The outer corners of the blocks are chamfered as at D, each stratum being likewise constructed so that the outer stratum C is

extended back partly over the sides of the stratum A. By this means when the block is used for building purposes or for building walls the outer face will simulate that of cut stone while the edges of the inner stratum A will be fully protected. By this means I am also enabled to economize in the use of artificial cement.

The method I employ in constructing these blocks is as follows:—I first take a suitable mold of the proper shape and size and of strength sufficient to withstand considerable internal pressure. The block or ashler is then built up, starting at the top first, that is to say, I first place in the bottom of the mold a stratum of Portland cement mixed with sand in the proportion of substantially one volume of cement to two volumes of sand. This amount, however, may be varied. This mass of cement and sand is thoroughly mixed and then moistened by incorporating therewith a sufficient amount of water to moisten each particle of sand and cement, leaving the mass in a moist rather than wet condition. I employ the term "moist" and wish it understood as designating a damp condition rather than a condition approximating a fluid or wet condition. The mass so treated is then thoroughly tamped and compressed, the "moist" condition of the mass preventing the water from oozing out as would be the case were the mixture over-saturated with the water. The material thus tamped becomes solid and firm. In so tamping and compressing the inner section of the block is first treated to form the concave under face as represented in the drawing. I next sift or spread on the exposed face of the compressed material a coating of pure cement, either natural or artificial. I then moisten this coating. The amount of material used in this step is sufficient to form a complete coating or covering and it constitutes a stratum impervious to water. I next take a mixture of natural cement and sand and incorporate therein a sufficient amount of water to moisten each grain thereof so that the mass will compact easily and thoroughly without the water rising or exuding. The proportions of sand and cement are one volume of cement to two volumes of sand. This amount may, however, be slightly varied. The material so mixed is then placed in the

mold over the strata of pure cement and thorough and absolute compression is placed on all parts thereof to form a solid and firm block. The mold is now inverted on a level plank or plain surface and is then removed from the block which will retain its shape and the cement is allowed to set.

It is evident that slight variations in the method described and in the article shown can be made without departing from the nature and principle of my invention.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. The method of forming building blocks or ashlers consisting in placing a "moist" mass of artificial cement and sand into the bottom of a suitable mold, thoroughly compressing the same to form a compact outer stratum or facing, coating the exposed face of the stratum with a stratum of pure hydraulic

cement, placing a mass of natural hydraulic cement and sand in a mixed moist condition onto the stratum of pure cement, thoroughly compressing the same and finally removing the block from the mold and allowing the cement to set, substantially as described.

2. The method of forming building blocks or ashlers, consisting in placing a moist mass of cement and sand into a suitable mold, compressing the same, applying a coating of pure cement to the exposed face of the material in the mold, placing a moist mass of hydraulic cement and sand on the coating, compressing the same, and finally removing the block from the mold, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM J. HADDOCK.

Witnesses:

FRANK T. BREENE,
 GEORGE TOMLIN.

C. W. STEVENS.

PROCESS OF MAKING ARTIFICIAL STONE.

[Application filed Nov. 12, 1897.]

(No Model.)

2 Sheets—Sheet I.

Fig. 1.

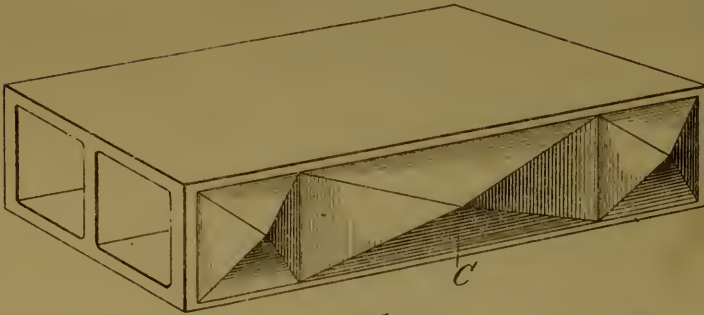


Fig. 2.

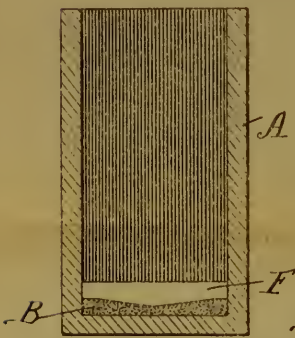


Fig. 3.

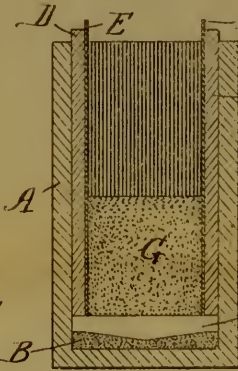


Fig. 4.

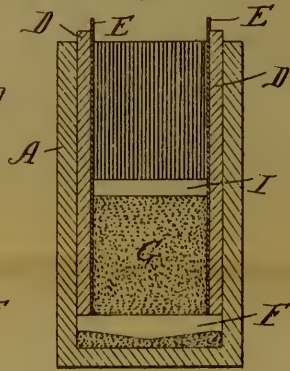


Fig. 5.

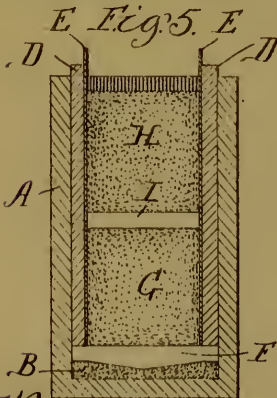


Fig. 6.

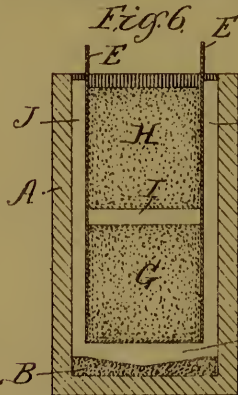
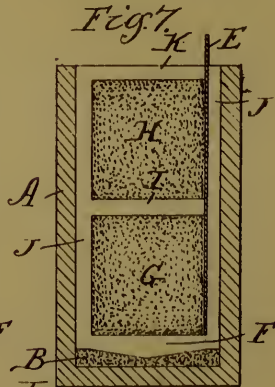


Fig. 7.



Witnesses.
 Wm. M. Rheem.
 Wm. A. Huming

Inventor
 Chas. W. Stevens
 by Raymond C. Goodrich atty.

Fig. 8

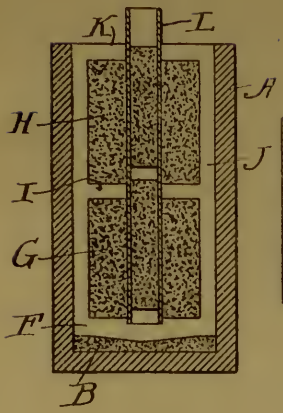


Fig. 9

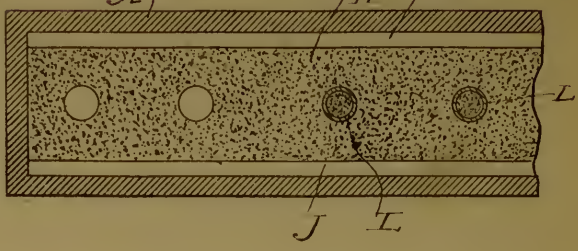


Fig. 10

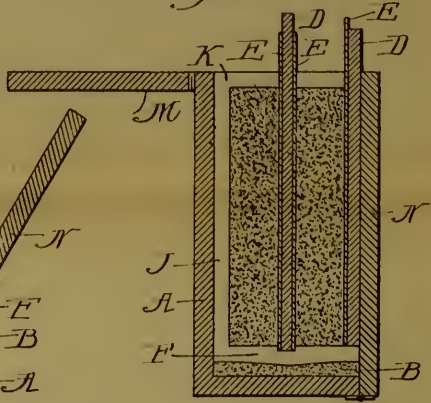
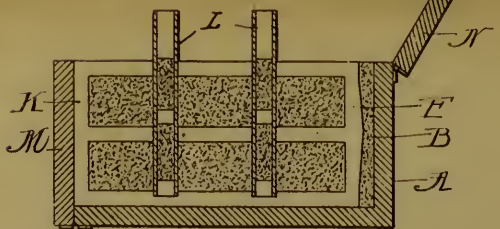


Fig. 11



Witnesses
 J. P. Barrett
 Wm. M. Rheem

Inventor
 Chas. H. Stevens
 by Raymond A. Oshields
 Attys.

UNITED STATES PATENT OFFICE.

CHARLES W. STEVENS, OF HARVEY, ILLINOIS.

PROCESS OF MAKING ARTIFICIAL STONE.

SPECIFICATION forming part of Letters Patent No. 624,563, dated May 9, 1899.

Application filed November 12, 1897, Serial No. 656,273. (No specimens.)

To all whom it may concern:

Be it known that I, CHARLES W. STEVENS, a citizen of the United States, residing at North Harvey, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Processes of Making Artificial Stone, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to improvements in the processes for the manufacture of artificial stone, and particularly to that class exemplified by Letters Patent of the United States No. 583,515, granted to me June 1, 1897.

The object of the present invention, generally stated, is the same as the object of the invention disclosed in the said Letters Patent—to wit, the production of either plain or ornamental artificial stone in the place where it is to be permanently used or in a factory from whence it is distributed for use.

The object of the present invention, more specifically stated, is an improvement in the processes for manufacturing artificial stone, whereby either solid or hollow, plain or ornamented artificial stone may be produced, adaptable for any building purposes, such as cornices, courses, fronts, or any other purpose to which natural stone is generally applied in building, and at the minimum cost, both of material and workmanship, and of such simplicity as to dispense with the employment of skilled labor.

The process described in my former patent above mentioned is what I have designated as the "dry" process, the stone-producing compound being therein molded and manipulated in a dry powdered form in the molding operation and subsequently saturated with water. In my present invention, which I have designated as the "wet" process, the stone-producing compound is molded and manipulated in a wet or plastic state, and the final step of saturation of both the compound and the molding-sand is dispensed with, the molding-sand in my present invention being comparatively dry and relied upon to extract or absorb the moisture from the stone compound.

In carrying out my process any suitable form of apparatus may be employed; but I

have found by practice that the apparatus illustrated in the accompanying drawings possesses many advantages over any other apparatus known to me.

I will therefore describe and illustrate my said novel apparatus in connection with my process as the preferred form of apparatus for carrying out the same, without, however, desiring to in any manner limit my invention to the use of such an apparatus.

In the drawings, Figure 1 represents a perspective view of a typical completed hollow stone as produced by my process. Figs. 2 to 7, inclusive, illustrate one way of using my preferred form of apparatus in carrying out my process, as will be described in detail farther on. Figs. 8 to 11, inclusive, represent detail views illustrating a further use of my invention for producing a superior article of manufacture by my process, as will be described in detail farther on.

While my process is adaptable to the manufacture of any kind, form, or configuration of stone, it is particularly applicable to what is called "hollow stone," resembling in shape the ordinary terra-cotta hollow building-tiles with strengthening cross-webs, for cornice-work, ornamental coursework, entire fronts, and the like, and I will therefore describe my process in detail as employed in the manufacture of such hollow stone, it being understood, of course, that the apparatus, even of my preferred form, must be varied as to dimensions, configuration, and use, according to the article which it is desired to produce.

Referring now to the drawings, I will first say that we will assume the form of hollow stone illustrated in Fig. 1 is sought to be produced by the apparatus in the manner illustrated in Figs. 2 to 7.

I first take a box A, of suitable dimensions, corresponding to a molder's flask, the inner walls of which I prefer should serve as the faces against which all of the outer plane faces of the stone article shall be molded except the ornamented and opposite faces thereof. In the bottom of this box I place a suitable layer of fine molder's sand of any suitable thickness and in a just sufficiently-moistened condition to hold its form when pressed to any desired shape. In other words, I pro-

pose to have this sand as dry as possible for the intended purpose. Into this sand with a suitable pattern I impress the shape of the ornamented face desired—such, for instance, as the face C of the stone illustrated in Fig. 1—which pattern should preferably extend over the entire area of the interior of the box. I next pour into the impression thus made the stone compound in a plastic or semiliquid state, sufficiently wet to flow easily and to a depth corresponding with the desired thickness of the hollow stone. This compound may consist of any stone-producing mixture of materials and may be either colored throughout or mixed to produce a mottled effect or to produce contrasting colors on the face of the ornamental stone, and, in fact, different colors of the compound may be poured to form different parts of the ornamented face. This first manipulation, as far as described, is illustrated in Fig. 2. I next insert the parting-boards D at the vertical sides of the box, which are faced with metallic facing-plates E of suitable form upon the interior of the box. Both the parting-boards and facing-plates rest upon the back or top of the ornamented stone facing and preferably extend a little beyond the upper edges of the box. I then fill in the box, say, to about one-half its depth (or to any other point, according to the number of strengthening-webs desired) with the molding-sand, as at G, in as nearly dry a state as is practicable, and upon this sand filling pour a suitable layer of the stone compound in a plastic or semiliquid state. Figs. 3 and 4 serve to illustrate the use of the apparatus as thus far described. I next fill in with more molding-sand, practically dry, nearly to the top of the box, as illustrated at H in Fig. 5. Having now formed in the sand the ornamented front wall F and the strengthening-web at the center of the hollow stone, I next successively draw out the parting-boards D and pour into the spaces formed by them the stone compound, which flows down to and unites with the front F and the strengthening web or partition I, thereby forming the sides J of the hollow stone, as illustrated in Fig. 6. I next withdraw the facing-plates E, as illustrated in Fig. 7, and fill in to the top of the box with the stone compound, which unites with the sides J and forms the back wall K of the hollow stone. The hollow stone is now completely molded and may now be laid aside for setting or curing in any well-known or desired manner, according to the compound used.

The use of the parting-boards is desirable, as will be readily seen, in order to have a wall to build against and at the same time which may be withdrawn to allow the stone compound to flow in and take its place. The use of the metallic face-plates, in connection with the parting-boards, is also very desirable, because neither the sand nor the stone compound will adhere thereto, as they would to

the parting-boards, and hence when withdrawn they leave comparatively sharp and square edges as between the stone material and the molding-sand, thus producing an article of superior finish. I may also say that if found desirable the top layer of stone compound, forming the back K of the hollow stone, may be covered with a sufficient layer of sand to properly aid in the absorption of the moisture from this part of the compound and at the same time protect the same against the direct action of the atmosphere thereon, which might in some cases produce weather-checking.

It will of course be understood that I have herein illustrated and described the simplest form of apparatus and a type of the simplest form of hollow stone which can be produced by my process, and it will of course be understood that in the making of artificial stone of different shapes, contours, and dimensions the box, the parting-boards, and the facing-plates must be modified accordingly, for obviously hollow stone with both ornamented sides and ends or with obliquely or otherwise disposed ornamentation and contour extending in various directions may be produced by my process and apparatus without any variation whatever in the process and practically no variation in the apparatus, excepting that the use of the parting-boards and facing-plates would probably in all cases be limited to the plane surfaces, although that is not absolutely essential, because the blocks may be molded with either top, bottom, sides, or ends uppermost or in an oblique position, according to the particular article being made. I have also found by practical experience that in the molding of either delicate or intricate ornamental designs the best results can be obtained by first filling in the impression of the pattern made in the sand to the depth of about an eighth of an inch with dry stone compound and backing it up with the liquid compound, because the fine lines and sharp edges will be better brought out, the dry powdered stone compound entering the depressions formed by the pattern more perfectly than the plastic or semiliquid compound. I have also found that where it is desirable greater strength may be given the hollow stone, either laterally or longitudinally, than is afforded by the strengthening web or partition formed therein in the molding of the stone by providing posts extending between the exterior walls, either front and back or sides, and also, if desired, between the partitions and the exterior walls. These posts are formed of the stone compound in the manner about to be described, it being understood that in both cases the posts are formed before the hollow stone is allowed to set or is cured. In other words, I am able to produce by this process an article superior in strength to that produced by any other process and by the use of the same apparatus employed in carrying out the process.

In producing a hollow stone thus strengthened of the form illustrated in Figs. 1 to 8 of the drawings I would take a tube J, preferably metallic, and after the stone is completed, as illustrated in Fig. 7, I would force the tube through both the back wall K and partition I, partly through the front F, and of course through the sand fillings or layers G and H and then withdraw the tube, carrying with it the sand and stone compound by which it will be filled. As many of these holes as desirable may be formed along the length of the stone and then filled with the plastic or semiliquid compound up to a level with the surface of the back wall K. Each post will form a homogeneous union with the back and front walls and the partition, besides extending therebetween, so that when the filling-sand is removed from the stone these posts will serve as braces between the front and rear wall and the partition or strengthening-web. In Fig. 8 I have illustrated a vortical section of the molding-box with the stone complete, showing the manner of using the tube L to form the posts. In Fig. 9 I have illustrated a horizontal section of the same, but showing some posts completed and others with the tubes in place preparatory to making the holes for the posts.

In Figs. 10 and 11 I have shown how a hollow stone formed with its ornamented face down and having a strengthening-web at right angles to the back wall K thereof may be provided with posts extending through such partition or web and between the upper and lower walls or sides of the block parallel with the back wall. In such case I prefer to employ a hinged top M and a hinged side N for the mold-box in order that the posts may be formed through the sides of the hollow stone after the same has been formed face downward or in a position at right angles to that in which the posts are formed. In this apparatus it will be noticed that the partition-board D has a facing-plate E on each side thereof to form the strengthening-web, and it will of course be understood that the same means can be adopted for forming the side walls J, in which case of course the side partition-boards D would be set at suitable distance away from the sides of the box or flask, and a layer of sand would intervene between said boards with their double facings and the sides of the box. The stone will thus be formed by molding the stone compound wholly in sand—that is, with sand on all sides or upon each side of each layer of the compound.

I may heretofore state that while the hollow building-stone may be the more common form in which such stones are produced it is within the purview of my invention to produce solid stone blocks or to produce solid flat or concave tiles for use in ornamental coursework, in which case the apparatus would necessarily consist only of a box of the desired shape and dimensions, for after the impression is made in the sand in the bottom of the box the com-

pound will be poured in to a suitable depth and then backed up by a sufficient layer of sand to properly absorb the moisture.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The process of forming artificial stone consisting in molding the stone compound while in a plastic or semiliquid state in or on a mold formed of relatively dry sand and then allow the mass to set until the sand absorbs the surplus moisture from the compound, thereby converting the latter to a solid or non-liquid form, substantially as and for the purpose set forth.

2. The process of forming artificial stone consisting in molding stone compound while in a plastic or semiliquid state, in or on a partial mold formed of relatively dry sand, and then covering the compound with relatively dry sand and finally allowing the mass to set until the sand absorbs the surplus moisture from the compound, thereby converting the latter to a solid or non-liquid form, substantially as and for the purpose set forth.

3. The process of forming artificial stone consisting in molding layers of stone compound while in a plastic or semiliquid state between or on layers of relatively dry sand and then allow the mass to set until the sand absorbs the surplus moisture from the compound, thereby converting the latter to a solid or non-liquid form, substantially as and for the purpose set forth.

4. The process of forming artificial stone consisting in first molding layers of stone compound while in a plastic or semiliquid state between or on layers of relatively dry sand, then removing a portion of such layers of compound and sand and replacing such removed portions with stone compound in a plastic or semiliquid state and finally allowing the mass to set until the sand absorbs the surplus moisture from the compound, thereby converting the latter to a solid or non-liquid form, substantially as and for the purpose set forth.

5. The process of forming artificial stone consisting in first forming in relatively dry sand a partial mold of one or more faces of such stone, next filling into the partial mold thus formed a lining or layer of stone compound in a dry powdered state, then molding thereon a layer of stone compound in a plastic or semiliquid state next covering the compound with relatively dry sand and finally allowing the mass to set until the sand absorbs the surplus moisture from the compound, thereby converting the latter to a solid or non-liquid form, substantially as and for the purpose set forth.

CHARLES W. STEVENS.

Witnesses:

WM. O. BELT,
C. L. WOOD.

E. DAVIES.

METHOD OF MAKING CEMENT FENCE POSTS.

(Application filed May 29, 1901.)

No Model.)

Fig. 1.

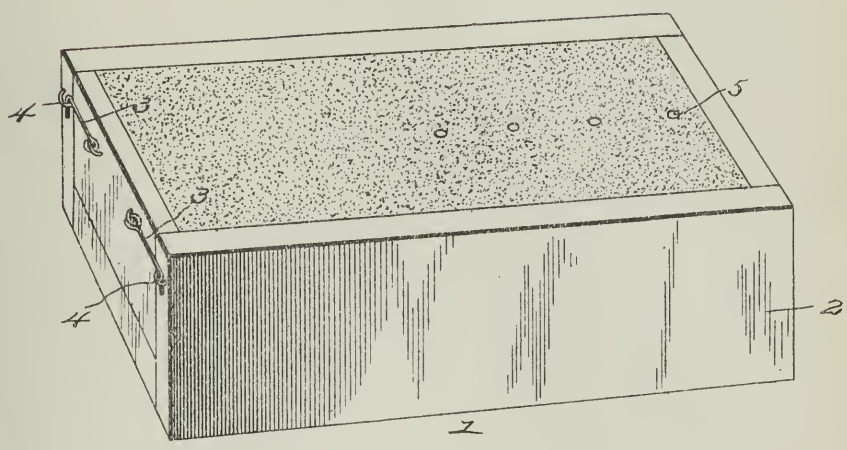
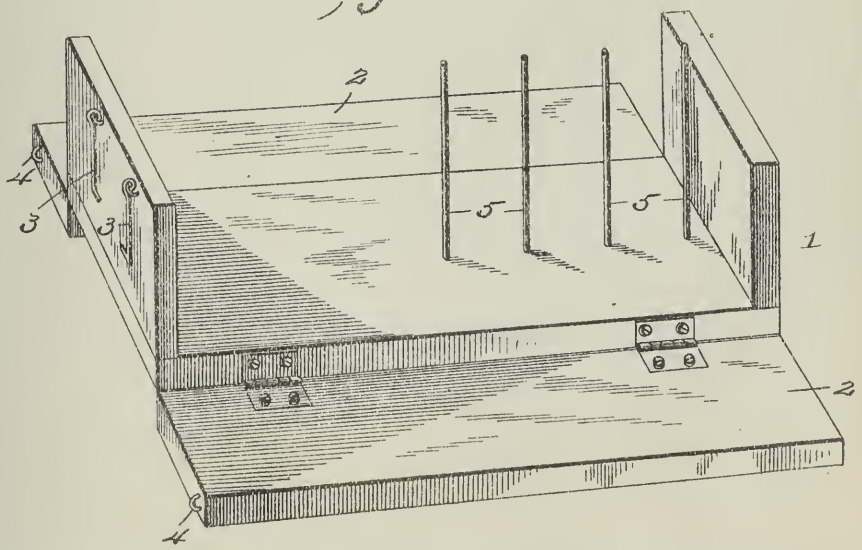


Fig. 2.



E. Davies, Inventor.

By, C. G. Siggers.

Witnesses:
Chieser

UNITED STATES PATENT OFFICE.

EDWARD DAVIES, OF READING, MICHIGAN.

METHOD OF MAKING CEMENT FENCE-POSTS.

SPECIFICATION forming part of Letters Patent No. 703,644, dated July 1, 1902.

Application filed May 29, 1901. Serial No. 62,385. (No specimens.)

To all whom it may concern:

Be it known that I, EDWARD DAVIES, a citizen of the United States, residing at Reading, in the county of Hillsdale and State of Michigan, have invented a new and useful Method of Making Cement Fence-Posts, of which the following is a specification.

This invention relates to a method of making cement fence-posts.

The object of the invention is in a certain, ready, and thoroughly practical manner and without adding to the expense of the production of the post to preclude entrance of moisture to the post, whereby hardening will be accelerated and destruction due to disintegration from entrance of moisture will be effectually obviated.

A method heretofore commonly practiced for shielding the post from the action of moisture has been to dust the post while in the mold with cement, and this, by absorbing moisture from the post, will become associated therewith and form a film merely on one side thereof, or at most on a side, the edges, and two ends, thus leaving the remaining side unprotected. While a fence-post treated in this manner will be effective for use in climates where there is but little moisture and but little frost, yet in higher latitudes it would be practically inoperative for effective use, for the reason that if moisture enters or is taken up by the post and this moisture becomes congealed by cold, disintegration of the post is inevitable.

Under the procedure set forth in my invention I provide a protecting envelop or film that entirely covers every particle of the exposed surface of the post, so that in the event of its being set up before the interior is thoroughly dry it will still be protected against entrance of moisture, thereby permitting it in time to set and become perfectly hard and firm.

As demonstrating one way of carrying my invention into effect, I have exhibited in the accompanying drawings a form of mold that may be employed in carrying the invention into effect, it being understood that the invention is not to be restricted to any particular shape of post or any particular shape of mold, as it is equally well adapted to posts of

any contour that may be desired, and in the drawings—

Figure 1 is a view in perspective exhibiting the mold with the sides folded up, displaying the post in position therein. Fig. 2 is a similar view with the sides turned down to permit the removal of the posts.

In carrying my invention into effect I fill the mold 1, which may be, as before stated, of any preferred shape, with a mass of damp sand, gravel, and cement mixed in suitable proportions to produce the best results, and this composition is pounded into the mold to cause a close adherence of the molecules of the composition, the sides 2 of the mold being closed up, as shown in Fig. 1, and held in this position by hooks 3 engaging staples 4 on the sides. To present the proper openings or holes through which the wires are passed for securing the fence-wires in position against the post, I associate with the mold a plurality of bars of metal 5, these to be of the required diameter to present the openings desired. When the composition has become sufficiently set to permit of the post being handled without danger of breaking and before it has become finally set, the sides of the mold are let down and the post is removed from the mold and dipped into a bath of pure liquid Portland cement of such fluidity as that it will run smoothly and evenly over the entire exposed surfaces of the post and fill all cracks, crevices, and interstices, except the openings left by the bars 5, the walls of which openings are likewise coated with a film of the cement. By reason of the fact that the cement is in liquid form it will rapidly dry and thereby present upon all of the exposed surfaces of the post an envelop or film of moisture-proof material. Should it be found that one dipping of the post is not sufficient, although it generally will be, it may be dipped one or more times, the point being in either event to effect a perfect closure of any opening that may exist upon the exposed surfaces of the post. The post is then set aside until the coating shall have become thoroughly dried, and the posts may then be set in place for use. When so set up, it will be immaterial to what moisture it is exposed, as such moisture cannot gain entrance to the interior of

the post, and in time the post will become thoroughly set and, as will be readily understood, increase in hardness with age.

Heretofore fence-posts have been given a surface coating by applying the surfacing material by means of a brush or otherwise smearing said material upon the post. This is a laborious operation, requiring considerable time and resulting in an unequal and unsatisfactory surfacing of the post. In view of this disadvantage it is the essential object of my invention to secure a uniform protective surfacing in an expeditious and thoroughly practical manner by dipping the post in a bath of liquid cement, which operation may be quickly carried out and results in a uniform coating without requiring the employment of skilled labor and also without particular attention upon the part of the operator.

It will be seen from the foregoing description that the method herein described will not add any material expense to the production of the post, and by reason of the fact that the life of the post will be indefinitely increased its use will be highly beneficial in the manufacture of posts of this character, rendering them, in effect, indestructible.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

What I claim is—

The herein-described method of making fence-posts, consisting in placing plastic material in a mold, permitting the same to remain therein until it has become hard enough to handle without breaking, then removing the molded material from the mold before it has become entirely set, and finally dipping the article one or more times in a bath of liquid hydraulic cement.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

EDWARD DAVIES.

Witnesses:

A. L. KINNEY,
F. R. ROBSON.

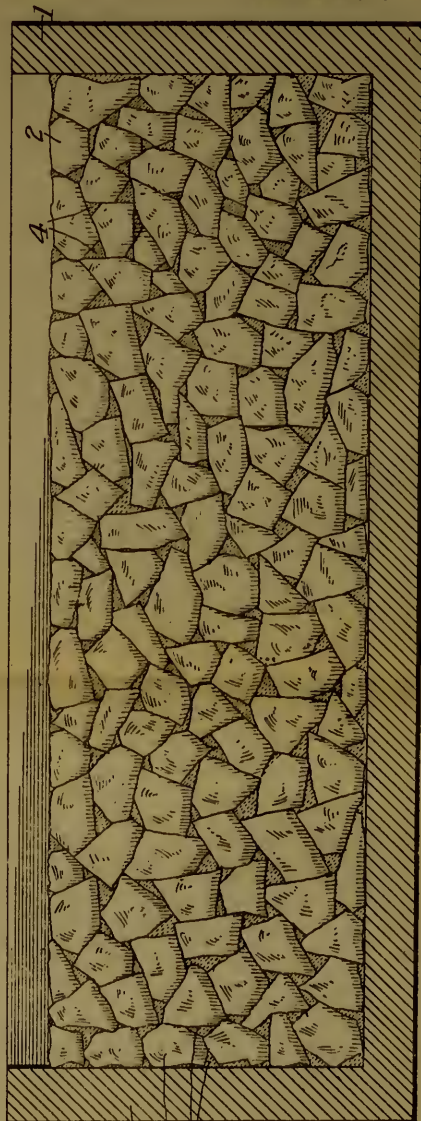
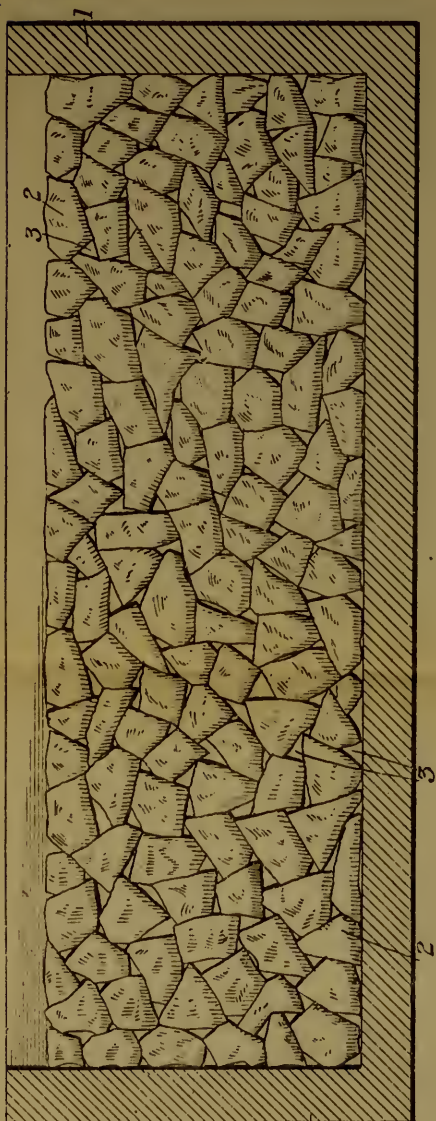
F. A. MALETTE.

METHOD OF MAKING CONCRETE BUILDING BLOCKS.

APPLICATION FILED APR. 17, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses:
 C. Scharburger
 H. L. Snyder

Fig. 1

Fig. 2

Inventor:
 Frederick A. Malette.
 by Wm. Stockbridge

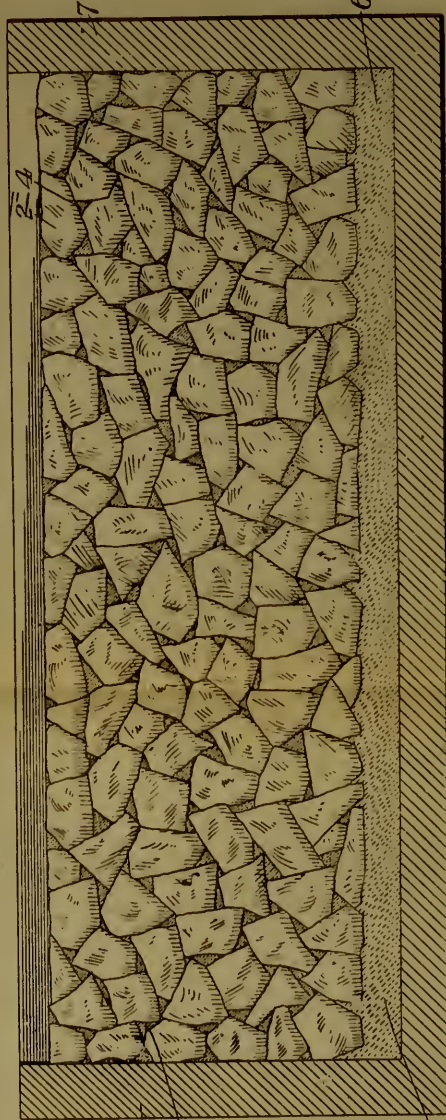
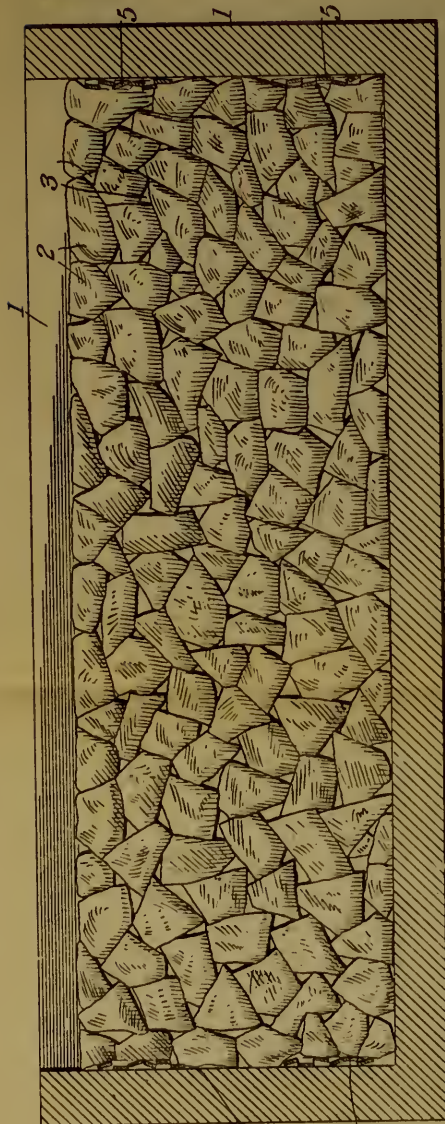
Atty.

F. A. MALETTE.
METHOD OF MAKING CONCRETE BUILDING BLOCKS.

APPLICATION FILED APR. 17, 1903.

NO MODEL.

3 SHEETS—SHEET 2.



Witnesses:
Chas. Schaeffer
H. L. Snyder

Fig. 3.

Fig. 4. Inventor:
Frederick A. Malette.

by *Wm. Metcalf Bridge*

Atty.

F. A. MALETTE.

METHOD OF MAKING CONCRETE BUILDING BLOCKS.

APPLICATION FILED APR. 17, 1903.

NO MODEL.

3 SHEETS—SHEET 3.

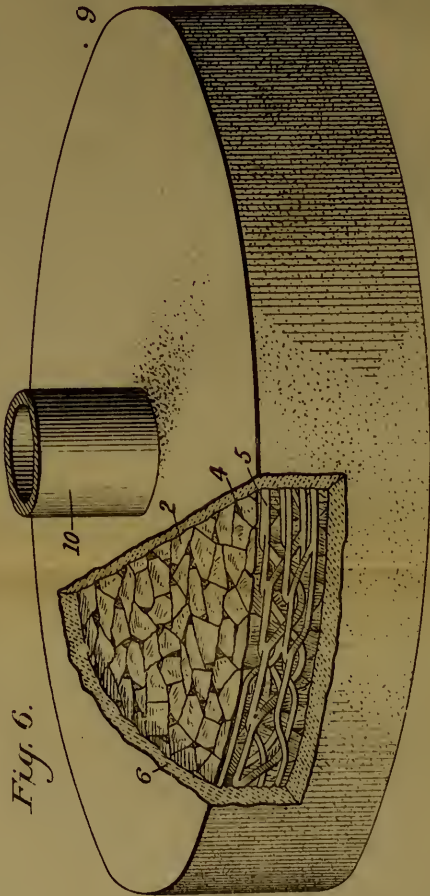
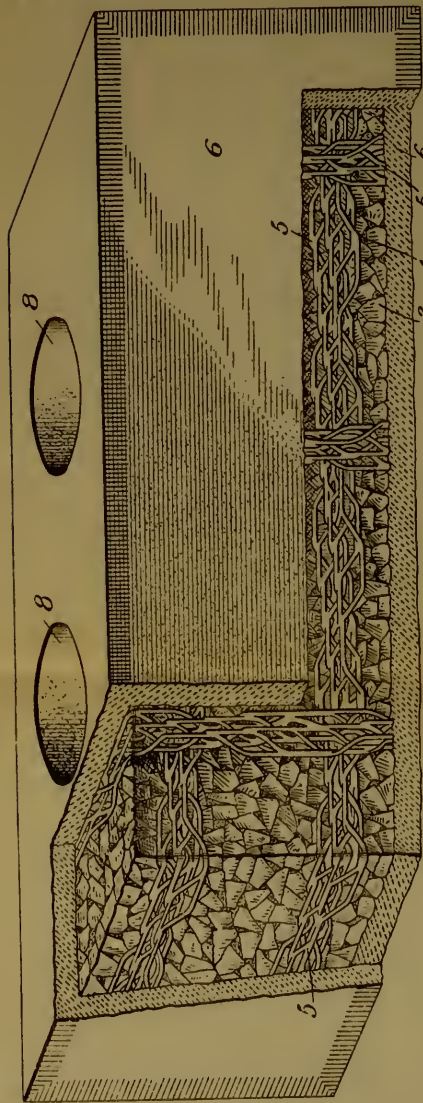


Fig. 5.

Witnesses:
 C. P. Korbinger
 A. L. Fryer

Fig. 6.

Inventor:
 Frederick A. Malette
 by W. M. Stockbridge
 Atty.

UNITED STATES PATENT OFFICE.

FREDERICK A. MALETTE, OF GENEVA, NEW YORK.

METHOD OF MAKING CONCRETE BUILDING-BLOCKS.

SPECIFICATION forming part of Letters Patent No. 751,089, dated February 2, 1904.

Application filed April 17, 1903. Serial No. 153,040. No model.

To all whom it may concern:

Be it known that I, FREDERICK A. MALETTE, a citizen of the United States, residing at Geneva, New York, have invented a new and useful Method of Making Concrete Building-Blocks, of which the following is a specification.

My invention is designed for the production of an improved concrete building-block or the like having all the features of merit of the ordinary artificial building block or stone, with the advantage thereover of greater strength, rigidity, and strain-resisting power and the further advantage that it may be more easily and cheaply constructed.

The invention consists in the method of making the building-block.

In carrying out the invention crushed or broken stone is covered with a coating of mortar, preferably composed of sand and hydraulic cement or of sand, hydraulic cement, and stone dust or screenings. This coating is applied to the surfaces of all the individual stones.

Afterward the crushed stone thus coated is placed in a mold, and by compression, either by pounding or otherwise, the stones are bonded together, the bonding being effected by the compression to which the stones are subjected independent of the action of the cement. By thus bonding the stones together the spaces or voids between them are not filled.

After the bonding a suitable mortar of thin consistency—composed, for example, of hydraulic cement and sand or stone dust, or both—is poured upon the bonded mass of stone and allowed to flow down and fill a considerable portion of the spaces between the stones. The voids are thus filled after the bonding of the stone instead of at the same time, as is done according to the usual method of mixing concrete when the aggregate and mastic are combined in the same operation. The bonding of the large stones themselves in the first operation makes the completed work much stronger than when dependence is placed entirely upon the cement and mortar. This is due to the fact that the original or natural strength of the individual stones is utilized, that the same are enabled to lie in close contact with each other at their adjacent points, and that they are

maintained in such condition by the pressure to which they are subjected. Where a large block is to be made, the filling of the voids with thin mortar must be effected during the operation of building up the block, for the reason that with a very thick or high block the thin mortar will not flow from the top to the bottom, so as to fill the voids or spaces between the stones. In making a large block I proceed in the same manner as above described, except that a larger mold is employed, which is first only partially filled with the broken stone coated with mortar. The mass of stone is subjected to compression, as before, by pounding or in any other suitable way, and the voids or spaces between the stones are afterward filled by pouring thereon a mortar of thin consistency, preferably composed of hydraulic cement and sand or stone dust or screenings. When this has been completed, more of the broken stone coated with mortar is placed in the same mold on top of the mass previously treated and subjected to compression, as before. Afterward the voids or spaces between the stones of the upper mass are filled in the same manner as above described. These steps are repeated until a block of the proper thickness has been completed. For securing additional strength or reinforcement, as in the case of a large block or pillar, expanded metal or its equivalent may be embedded in the block during the course of its construction. This is done by introducing the expanded metal into the mold before the mass of mortar-coated stones is placed therein and proceeding in the manner above described in the construction of the block. When the mortar with which the stones are originally coated and that with which the voids or spaces between the stones are filled has become set, the expanded metal will be interlocked and interwoven with the mass of stone along the outer surface thereof and will serve to impart greater stiffness and rigidity thereto. The use of the expanded metal in the construction of the building-block has the further advantage of providing projections to which a surface coating of mortar may secure itself when the same is applied in the completion of the block. The expanded metal may of course be applied in other ways

than as described. For example, it may be connected with the body of the block after the latter has been completed. Furthermore, wire-cloth or other suitable material may be employed as a substitute for the expanded metal.

When the building-block constructed according to my improved method is to be used in exposed places, a surface coating will be applied to those faces thereof which are outermost and are exposed to view. This surface coating is made of mortar composed, for example, of hydraulic cement and sand or stone dust or screenings, the same being applied while in a plastic condition to the surface or surfaces of the block which are to receive the same and carefully rubbed down and smoothed out, so as to give the same a finished appearance and to render the surface of the block waterproof. It is best to apply this coating to the surface or surfaces of the block by the application of pressure in order to cause the mortar of which the surface coating is made to penetrate the spaces between the stones of which the body of the block is made at the surface thereof. In the actual construction of the block it is intended to apply the surface coating to the body, which is composed of the broken stones bonded together, either before the voids between the stones at the surface of the block have been filled with the thin mortar which is intended to fill the same or before said thin mortar has become hardened or set. A tight gripping action between the surface coating and the body of the block may thus be obtained.

The block may be made hollow, if desired, the only thing necessary to effect this result being to introduce one or more wooden or other cores into the mold prior to the introduction and compression of the mortar-coated stones therein, building up the block around said core or cores and afterward removing the same.

In the construction of pillars it is my purpose to make the same in sections, which are preferably tapering in form and are circular, elliptical, or other suitable shape in cross-section. Each of said sections will preferably be formed with a circular or other suitable opening therein at its center, so that in building up a pillar from the different sections the latter may be strung upon a metal tube or upright which extends through the openings therein.

In order that my invention may be the more readily understood, I have illustrated my improved block in the accompanying drawings in various stages of its completion.

Figure 1 is a sectional view of one of the molds employed, showing a block in its first stage—that is, after the mortar-covered stones have been introduced into the mold and bonded together by compression, but before the voids or spaces between the stones have been

filled. Fig. 2 is a similar view showing a block in its mold after the voids or spaces between the stones have been filled. Fig. 3 is similar view showing a block built up in its mold with the expanded-metal-reinforce. Fig. 4 is a similar view showing one means of applying a surface coating to the body of the block by the application of pressure. Fig. 5 is a perspective view, partly broken away, of a completed block having openings formed therein and provided with an expanded-metal reinforce; and Fig. 6 is a similar view of one of the block-sections employed in the building up or construction of a pillar, showing a metallic upright extending through the opening at the center thereof.

Like reference-numerals indicate like parts in the different views.

The mold 1 may of course be of any suitable shape, the particular shape being determined by the form which it is intended the completed block shall assume. Into this mold, as shown in Fig. 1 of the drawings, is placed a mass of mortar-coated stones 2, which while in the mold are subjected to compression without filling the voids, the said voids being indicated in Fig. 1 of the drawings by the numeral 3. In the same mold after the bonding by compression the mass of stones has poured thereon a layer of mortar of thin consistency, which flows down through the spaces between the stones and fills or partially fills said spaces, as indicated at 4 in Fig. 2 of the drawings. When the block is to be supplied with a reinforce 5 of expanded metal, wire-cloth, or the like, the latter is introduced into the mold, as shown in Fig. 3 of the drawings, and the mortar-covered stones 2 compressed and bonded within it. The metallic reinforce may, however, be otherwise applied to the body of the block, if desired.

One means of applying the surface coating 6 to the block is illustrated in Fig. 4 of the drawings. The mass of mortar which is intended to form the surface coating of the block is placed in the bottom of a mold 7 while in a plastic condition, and a block consisting of the bonded mass of crushed or broken stones is placed down upon the mass which is to form the coating and pressure applied from above. The mortar of the coating is thus caused to penetrate the spaces or voids between the stones at the surface and when it hardens adheres closely thereto by being locked in place. As heretofore stated, it is preferred to apply the surface coating 6 before the voids between the crushed stones along the surface to be covered have been filled or before the mortar filling said voids has become hardened. If the surface coating is to be applied to more than one face of the block, the mortar which is to constitute the same is introduced either at the side or top of the mold or at both places.

The openings 8 in the block may be produced by introducing cores into the mold 1,

building up the block around said cores, and afterward removing the same.

The block-section 9 (shown in Fig. 6 of the drawings) is one which is intended to be used in the construction of a pillar. The same is made in a similar manner to the other forms of blocks described, but has been shown as circular in cross-section and as tapering from its base upwardly. Each section 9 is formed with an opening extending vertically therethrough to enable the different sections which go to make up a complete pillar to be strung upon a metallic tube or upright 10.

While I have described my invention as a method of making building-blocks, it is intended, of course, to cover a method of making posts, pillars, or other building stone or foundation.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The method of making concrete building-blocks and the like, which consists in coating the individual stones with mortar, subjecting a mass of the stones thus coated to compression and simultaneously molding said mass into proper shape, whereby the stones are bonded together independent of the action of the mortar and without filling the spaces or voids between them, beneath the surface of the mass, and afterward pouring a thin mortar onto the mass and allowing it to flow down into the voids between the stones and partially fill the same.

2. The method of making concrete building-blocks and the like, which consists in coating the individual stones with mortar, subjecting a mass of the stones thus coated to compression and simultaneously molding said mass into proper shape, whereby the stones are bonded together independent of the action of the mortar and without filling the spaces or voids between them, beneath the surface of the mass, afterward pouring a thin mortar onto the mass and allowing it to flow down into the voids between the stones and partially fill the same and finally applying a surface coating to one or more faces of the block thus formed.

3. The method of making concrete building-blocks and the like, which consists in coating the individual stones with mortar, subjecting a mass of the stones thus coated to compression and simultaneously molding said mass into proper shape, whereby the stones are bonded together independent of the action of the mortar and without filling the spaces or voids between them, beneath the surface of the mass, afterward pouring a thin mortar onto the mass and allowing it to flow down into the voids between the stones and partially fill the same, and finally applying a surface coating of fine mortar to one or more faces of the

block, before the spaces or voids between the stones at the surface have been filled.

4. The method of making concrete building-blocks and the like, which consists in coating the individual stones with mortar, subjecting a mass of the stones thus coated to compression and simultaneously molding said mass into proper shape, whereby the stones are bonded together independent of the action of the mortar and without filling the spaces or voids between them, beneath the surface of the mass, afterward pouring a thin mortar onto the mass and allowing it to flow down into the voids between the stones and partially fill the same, and finally applying, with pressure, a surface coating of fine mortar to one or more faces of the block, before the thin mortar introduced into the voids has set.

5. The method of making concrete building-blocks and the like, which consists in coating the individual stones with mortar, subjecting a mass of the stones thus coated to compression, and simultaneously molding said mass into proper shape, whereby the stones are bonded together independent of the action of the mortar and without filling the spaces or voids between the stones beneath the surface of the mass, pouring a thin mortar onto the mass and allowing it to flow down into the voids between the stones and partially fill the same, subjecting another mass of the stones thus coated to compression above the mass originally treated and simultaneously molding the latter mass into proper shape, pouring a thin mortar onto the latter mass and allowing it to flow down into the voids between the stones and partially fill the same, and continuing these steps until a block of the proper size is made.

6. The method of making concrete building-blocks and the like, which consists in coating the individual stones with mortar, subjecting a mass of the stones thus coated to compression, and simultaneously molding said mass into proper shape within a band of expanded metal or the like with which the mass of stones is surrounded, whereby said stones are bonded together independent of the action of the mortar and without filling the spaces or voids between them beneath the surface of the mass, and afterward pouring a thin mortar onto the mass and allowing it to flow down into the voids between the stones and partially fill the same.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FREDERICK A. MALETTE.

Witnesses:

J. G. FARWELL,
I. V. TRAINOR.

FIG. 1.

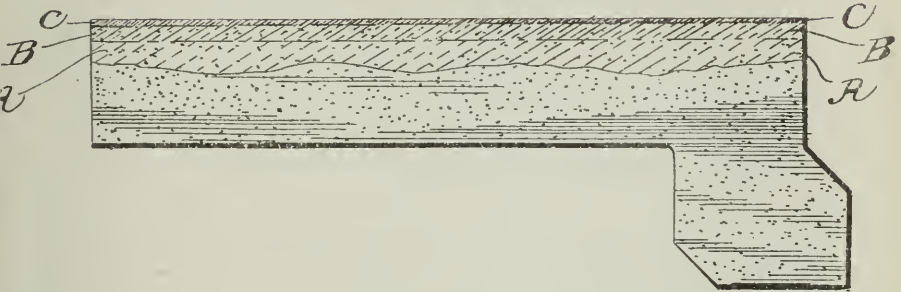
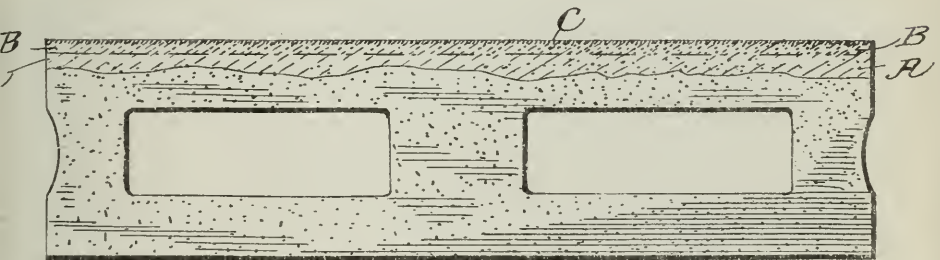


FIG. 2.



WITNESSES

Chas. A. Davis.

INVENTOR

Augustus O. Thomas.

R. C. B. H.

UNITED STATES PATENT OFFICE.

AUGUSTUS O. THOMAS, OF KEARNEY, NEBRASKA.

PROCESS OF MOLDING ARTIFICIAL-STONE BUILDING-BLOCKS.

958,194.

Specification of Letters Patent.

Patented May 17, 1910.

Application filed October 12, 1907. Serial No. 397,221.

To all whom it may concern:

Be it known that I, AUGUSTUS O. THOMAS, a citizen of the United States, residing at Kearney, in the county of Buffalo and State of Nebraska, have invented certain new and useful Improvements in Processes of Molding Artificial-Stone Building-Blocks, of which the following is a specification.

My invention relates to a new and improved process of molding artificial stone building blocks and the like, and particularly contemplates the provision of a process whereby the block may be molded and handled at once, and whereby its usefulness and strength will be equal to that of a wet mold block which could not be handled before twenty-five or thirty-six hours.

My invention further and specifically resides in the following process of molding artificial stone building blocks as will be hereinafter particularly described with reference to the accompanying drawings forming a part of this specification, in which—

Figure 1 is a plan view partly in section of a building block constructed according to my process, and Fig. 2 is a similar view of a modified form of building block constructed in accordance with my process.

According to my invention I aim to provide a building block comprising a body A composed of coarse aggregates and a comparatively small percentage of moisture, being thus made in low plasticity which gives the opportunity of handling the product immediately. The face B of this block comprises a mixture of finely divided aggregates formed in a state of high plasticity, that is with moisture sufficient to render the same into a thoroughly plastic mass. Making the body A of the block of low plasticity and the face B of a high plasticity, gives an opportunity of working the material and at the same time bringing out the virtues of the cement and making the block of sufficient moisture in the mixture, to produce perfect crystallization and to produce stone instead of merely cemented sand and gravel. This block is floated with some pressure which

closes the pores in the cement to further the opportunity of working the material properly and the surface is preferably sifted over with finely crushed marble or stone C properly mixed with Portland cement to produce a beautifying crystallized effect.

The addition of the powdered marble or other stone mixed with cement serves the immediate purpose of forming a very thin outside layer on the face of high plasticity preventing, by a thickening or stiffening action, the surface tendency to run, due to the oozing of the water to the surface, and thereby enables the block to be handled and used considerably earlier than would be otherwise possible. The powder further serves to prevent the escape of moisture from the face of high plasticity either by drip or evaporation.

When a mixture is made very dry as heretofore in molding blocks, it is hard to get sufficient water to produce perfect crystallization, while the facing of high plasticity provided by my process uses all the water that is necessary for perfect crystallization.

Having thus fully described my invention, I claim:

An improvement in making building blocks, which consists in forming the body portion thereof, of a mixture of coarse aggregates made in low plasticity, in forming a facing for the outer side of said body portion of a mixture of finely divided aggregates in high plasticity for furnishing sufficient moisture for the crystallization of said body portion, and in forming on the surface of said facing a thin layer in low plasticity by sifting on such surface powdered stone and cement to stiffen the surface of the facing and prevent the escape of moisture therefrom, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

AUGUSTUS O. THOMAS.

Witnesses:

S. L. GARRETT,
VIRGINIA MERCER.

UNITED STATES PATENT OFFICE.

DAVID F. SHOFF, OF ST. PAUL, MINNESOTA.

METHOD OF WATERPROOFING CEMENT BLOCKS.

985,769.

Specification of Letters Patent.

Patented Feb. 28, 1911.

No Drawing.

Application filed October 9, 1909. Serial No. 521,796.

To all whom it may concern:

Be it known that I, DAVID F. SHOFF, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Methods of Waterproofing Cement Blocks, of which the following is a specification.

My invention relates to the method of forming cement blocks having a water-proof facing, its object being to water-proof the exposed face of the block without the application of external pressure or the use of special water-proofing compounds, and in such manner that the block can be immediately removed from the mold.

Cement blocks, as distinguished from cast stone, are usually formed by pressing or tamping in a mold a mixture of sand and cement in a damp or semi-dry state so that the blocks can be immediately removed from the mold. The block, when formed and cured, is a porous body with interstices, voids, or pores between the particles of sand and cement, to which mortar will adhere in wall construction, but which must be water-proofed on its exposed face to prevent the absorption of moisture.

Where a special water-proofing compound is used, it is apt to destroy perfect crystallization during the curing period as well as to discolor the block. And where a special water-proofing compound is not used, the surface to be water-proofed must be thoroughly wet in order that the cementitious material used for water-proofing shall enter the pores of the block and become thoroughly crystallized so as to form a perfect union. In the manufacture of what is called "cast stone," the cement and aggregate (sand, marble dust and the like) is mixed to a flowing mass and cast in a mold, from which it cannot be removed until it has hardened and set, that is from three to ten or twelve hours, according to the temperature and set of the cement. It is impracticable to apply this liquid process to cement blocks by placing in the bottom of the mold a sloppy mixture of cementitious material and then forming the cement block upon it, because the block cannot be removed from the mold until the wet mixture has set, and the cementitious

material will not enter the pores of the block except under pressure.

In the present method the block is first formed in the usual manner by mixing sand and cement in a slightly moist or semi-dry state, and pressing or tamping it in a mold. Water is next applied, as by sprinkling, to the face of the block in sufficient quantity to enter the pores or interstices of the block, and then a powder of cement, either neat or mixed with sand or other ingredients, is sifted upon the water, which is at the same time agitated so as thoroughly to saturate the face of the block. The water will thus enter the pores or voids of the block to the required depth, and carry with it the cement powder sifted thereon. The water serves both to carry the cement into the pores and to cause crystallization of the added cement, and no external pressure will be required to force the water and cement into the block. The face of the block is then stippled or otherwise treated as may be desired, and the block removed from the machine and cured in the usual manner.

It will be understood that the main portion of the block remains in a comparatively dry state so that it can be immediately removed from the mold, and all its faces, except those exposed to the water and crystallizing mixture, will be porous so that the mortar will adhere to them, while the outer face will be proof against the absorption of water because all of the interstices and pores have been filled with crystallized cement.

The word "block" is here used generically to include a brick, tile or other mass of any shape or size, as well as a "block" technically so called.

I claim as my invention:

1. The herein described method of forming a water-proof faced cement block, which consists in first forming the block of suitable material in a semi-dry state, applying water to the face of the block in a sufficient quantity to enter the pores or interstices thereof, and adding cement to the water, whereby the cement will enter the pores or interstices with the water.

2. The herein described method of forming a water-proof faced cement block which

5 consists in first forming the block by mixing sand and cement in a semi-dry state and molding it, then applying water to the face of the block, then spreading cement upon the water and agitating the mixture to carry the cement into the interstices of the block to the required depth.

In testimony whereof I affix my signature in presence of two witnesses.

DAVID F. SHOPE.

Witnesses:

EDWIN R. HOLCOMBE,
H. SMITH.